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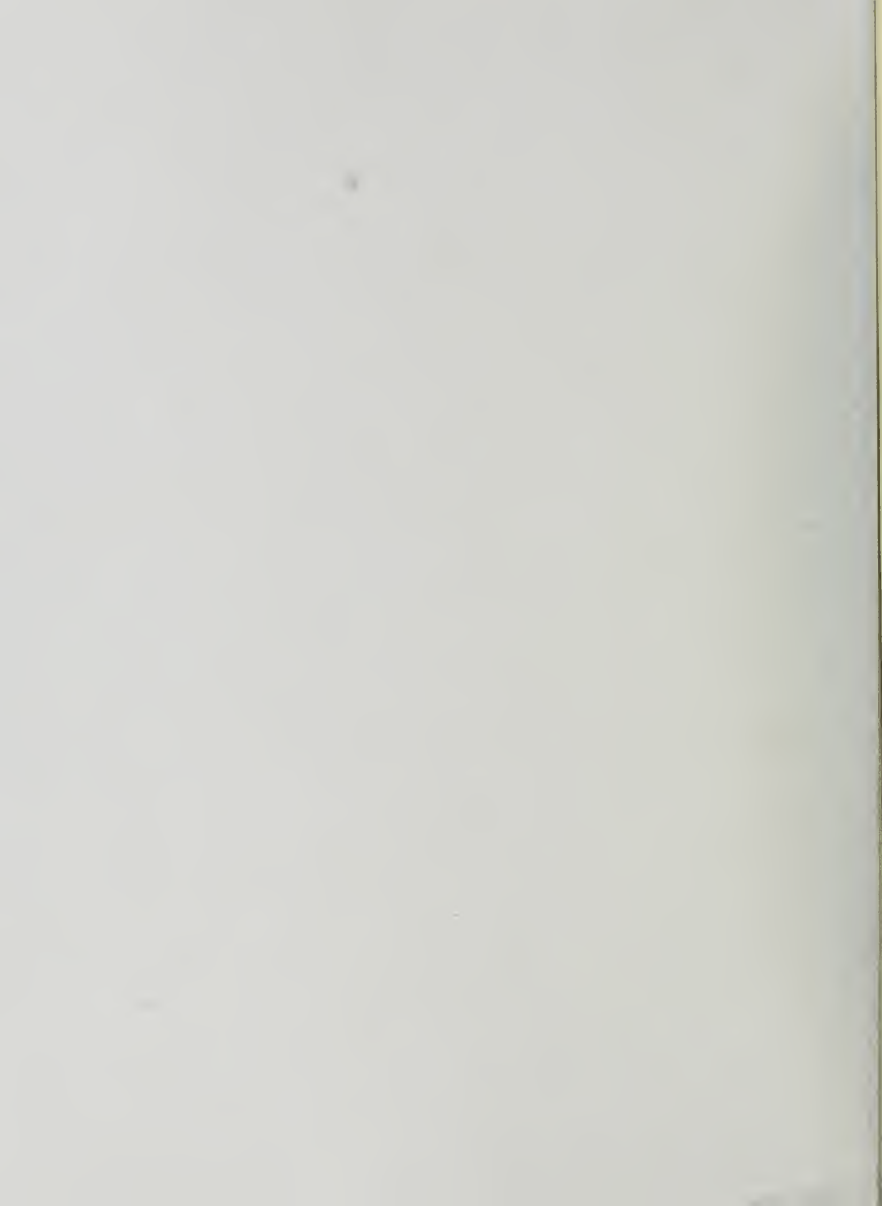
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**GREATER TORONTO AREA 3Rs ANALYSIS
NATURAL ENVIRONMENT TECHNICAL
APPENDIX**

DRAFT - NOVEMBER 1993



**Ministry of
Environment
and Energy**



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NATURAL ENVIRONMENT TECHNICAL APPENDIX

Prepared by M.M. Dillon Ltd.
for
Fiscal Planning and Information Management Branch
Ministry of Environment and Energy

DRAFT - NOVEMBER 1993



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1.0 INTRODUCTION

1.1 Background

In 1989, the government of Ontario announced its commitment to meeting a Provincial target of at least 50% reduction of waste going to landfills and incineration by the year 2000. This target, a waste **diversion** target to be achieved through waste reduction, reuse and recycling (the 3Rs), was confirmed by the present government in 1990.

To facilitate the achievement of the 50% target, the Province introduced the *Waste Management Act*, 1992. The Act broadens the government's powers to reduce waste sent to disposal through a variety of means. It also vests powers in the Interim Waste Authority (IWA), an agency created to ease the waste disposal crisis in the Greater Toronto Area (GTA). The IWA is complying with its mandate by conducting environmental assessments to locate three long-term landfill sites in the GTA.

The GTA Regional Municipalities of Peel and Durham are each defined for the IWA process as separate "primary service areas". Metro Toronto and the Regional Municipality of York have been defined as a separate combined primary service area. Each of the three defined primary service areas are proposed to receive one new landfill facility identified through the IWA's process. The fifth GTA Regional Municipality, Halton, has already obtained approval for a landfill site and thus is not part of the present siting process.

1.2 Purpose of Study

This study has two purposes, each of which relates directly to a requirement created by the *Waste Management Act*.

The first requirement pertains to waste estimates. Section 14 of the *Waste Management Act* requires the Minister of Environment and Energy to provide a written estimate as to:

- a) *the amount of waste that would otherwise be expected to be generated in the primary service area (i.e. each of Peel, Durham and Metro/York) during a twenty-year period that will not be generated because of waste reduction efforts; and*

- b) the amount of waste that will be generated in the primary service area during a twenty-year period that will not need to be disposed of in the site because of the reuse or recycling of materials that are or could become waste.

These waste estimates were provided to the IWA by Minister's letter dated May 15, 1992. A copy of this letter may be found in Appendix A. The current study provides additional analysis of 3Rs activities, in support of the waste diversion estimates previously provided.

The second requirement pertains to analysing the 3Rs as "alternatives to" landfill waste disposal sites. Section 15 of the *Waste Management Act* requires that the IWA environmental assessments contain a description of, and statement of rationale for the 3Rs, as well as evaluate matters relating to the 3Rs as an alternative to the landfill waste disposal sites. By administrative agreement, MOEE committed to provide such a rationale and evaluation to the IWA for use in its environmental assessments. The present report fulfils this requirement.

1.3 Study Approach

The GTA 3Rs Analysis identifies and assesses alternative 3Rs systems, comprised of combinations of 3Rs programs, technologies and practices, that could reasonably be implemented in the GTA. It also determines the potential for each 3Rs system to divert waste over the twenty-year minimum life expectancy of the GTA landfill sites, and identifies the advantages and disadvantages of each system.

For purposes of the present analysis, an array of conceptually different 3Rs systems have been identified for addressing residential wastes, as well as for institutional, commercial, and industrial (IC&I) wastes. For each system, estimates of the amount of waste the system could potentially divert from disposal have been determined. An assessment, done on a non-site-specific, generic level and documented in this report, identifies the advantages and disadvantages to the environment of each potential 3Rs system, in keeping with the *Environmental Assessment Act*.

In conducting the 3Rs work, and providing estimates of waste that will not require disposal in the IWA established sites, MOEE is acting as a reliable authority in accordance with its legislative mandate, and not as the proponent or co-proponent of any of the 3Rs systems discussed. The alternatives presented in this report are not in any way structured as detailed implementation plans for the Province, the Regions or the private sector.

1.4 Purpose of the Natural Environment Assessment and Study Objectives

This technical appendix documents the natural environment input into the GTA 3Rs analysis. Natural environment effects are defined as the potential for loss/removal or disruption to any terrestrial or aquatic features and emissions to the atmosphere.

The primary purpose of this natural environment assessment is to identify and assess the significance of effects to the natural environment which may occur as a result of the implementation of a 3Rs system within each of the four Regional municipalities (Metro Toronto, Peel, York and Durham). The results of this assessment are to serve as input into the overall 3Rs systems evaluation.

The study objectives of the natural environment assessment are as follows:

- Identification of existing natural environment conditions within each of the four Regional municipalities.
- Prediction of natural environment effects as a result of the implementation of any of the alternative 3Rs systems within each of the four Regional municipalities.
- Analysis of the potential natural environment effects including the development of mitigation measures for the purposes of identifying net effects.
- Ranking the systems of the four Regional municipalities from the perspective of the natural environment.

1.5 Outline of Report

Chapter 2 presents the study approach followed in the natural environment assessment.

Chapter 3 provides a general description of the existing natural environment conditions in the Regions of Durham, Metro Toronto, York and Peel.

Chapter 4 discusses the results of the assessment of the alternative 3Rs systems from a natural environment perspective.

Chapter 5 summarizes the findings of the assessment of 3Rs systems with respect to the natural environment.

2.0 APPROACH

This section outlines the approach followed for identifying potential effects to the natural environment from 3Rs components and alternative 3Rs systems.

2.1 Impact Assessment Criteria

The natural environment includes land, water, plant and animal life, and air aspects of the environment. To assess the potential effects of the alternative 3Rs systems on the natural environment, it was necessary to develop a set of impact assessment criteria.

The following three criteria were developed:

- Potential for effects to terrestrial systems and resources;
- Potential for effects to aquatic systems including surface and ground water resources; and
- Potential for effects to the atmospheric environment.

The indicators, rationale and definition for these criteria are presented in Table 2.1.

The Natural Environment impact criteria formed the basis for the assessment of the alternative 3Rs systems. As specific components or facility locations were not known for any of the systems, locations of sites typical to the system components were assumed (e.g. waste management facilities are often located on industrial lands, landfill sites or at municipal works yards). The impact assessment criteria and indicators reflect this level of detail. The criteria and their indicators addressed the potential for the loss/removal and/or disruption of resources and features.

The natural environment assessment criteria and indicators were developed in "draft" and circulated for agency review and comment. Review comments received on the criteria and their indicators were addressed and incorporated.

2.2 Data Sources and Methods of Analysis

A variety of sources were used to compile information on potential effects to the natural environment due to alternative 3Rs systems. The analysis of the collected data relied on the identification of potential effects and the success of mitigative measures implemented by established and operating 3Rs components.

Three specific activities were used to assist in gathering data:

- An extensive literature review was undertaken to identify documented specific effects on the natural environment;
- Telephone contacts were made with operators of 3Rs system components to obtain actual operating experience and knowledge of effects on the natural environment from 3Rs components; and
- Information collected by the Ministry of Environment and Energy (MOEE) as part of a survey of registered complaints or non-compliance with operating conditions of any 3Rs components was reviewed.

Information and input from other study team members, based on their professional experience, was also considered as part of the data collection and analysis.

The following describes in detail the three key data collection activities including a summary of the data collected.

2.2.1 Literature Review

An extensive literature review was undertaken to identify any documented evidence of effects to the natural environment due to the development and operation of 3Rs components/systems. The literature review was also intended to identify potential measures to mitigate any effects.

TABLE 2.1
NATURAL ENVIRONMENT CRITERIA GROUP
ASSESSMENT CRITERIA AND INDICATORS

Criteria	Indicator	Definition	Rationale
Potential for Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> • Potential for loss or removal of terrestrial systems and resources • Potential for disruption effects to terrestrial systems and resources 	This criterion addresses the potential for the loss/removal and disruption to terrestrial systems and resources. This includes terrestrial biological systems and forest, mineral and agriculture resources.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act).
Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> • Potential for loss or removal of aquatic systems including surface and ground water resources • Potential for disruption effects to aquatic systems including surface and ground water resources 	This criterion addresses potential for the loss/removal and disruption to aquatic systems and resources. This includes aquatic biological systems and surface water and ground water resources.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act)
Potential for Effects to the Atmospheric Environment	<ul style="list-style-type: none"> • Potential for atmospheric emissions 	This criterion addresses the potential for effects to the atmospheric environments. This involves effects due to emissions such as gases, odour and dust.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act)

The literature review conducted included books, manuals, periodicals, newspaper articles, technical reports and other published and unpublished documents. The literature review focused mainly on experience with 3Rs components within North America and, to a lesser extent, Europe. A bibliography is included following Section 5.

The effects identified through the literature review focused mainly on effects to aquatic systems including surface and ground water resources and on effects to the atmospheric environment. Minimal reference was identified on any potential effects to terrestrial systems and resources from 3Rs components.

Potential effects to terrestrial systems were identified as being the loss or removal of an existing resource. This loss or removal would be the result of siting a large scale 3Rs facility (e.g. processing facility, compost facility) requiring a significant amount of land. However, the available information notes that generally this effect is easily mitigated by siting any such facility in the appropriate location. An appropriate location was identified as industrial zoned areas or an existing landfill site.

Effects to aquatic systems were not specifically categorized as resulting in the loss/removal or disruption of aquatic systems including water resources. The most frequently cited effects included the discharge of leachate from a centralized composting facility and its release to surface water and ground water. Mitigative measures are readily available to prevent surface water runoff from entering the site, collecting any on-site runoff and the installation of a low permeability pad or leachate collection system underneath the compost area to prevent contamination of ground water. The literature did not identify any instances where these measures had failed to mitigate the potential effects. The development of large scale materials processing or recovery facilities (MRFs) and central compost facilities was also identified as potentially disrupting local surface water drainage patterns. Typically, the development of these facilities requires that a storm water management plan be developed.

Literature on the potential effects to the atmospheric environment were identified for only a few 3Rs components. Emissions to the atmosphere were identified most commonly with central compost facilities. Based on the reviewed documentation, the air emissions of concern from municipal solid waste composting operations fall into two broad categories: bioaerosols and gaseous emissions. Bioaerosols include bacteria, fungi, viruses and microbial products. The primary pathway for the toxic components of these bioaerosols to become airborne is associated with dust and particulates generated during waste handling and processing before exposure to thermophilic conditions (temperatures of 40°C to 60°C). Based on the available data, there was no evidence that levels of bioaerosols have occurred above background levels (on-site and off-site) in operating compost facilities.

Volatile organic compounds (VOCs, e.g. benzene, toluene, acetone) and odorous compounds are gaseous emissions that are of concern to the atmospheric environment. Gaseous emissions are created in two ways at composting facilities. This includes the volatilization of specific compounds present in municipal solid waste and during aerobic and anaerobic decomposition in which compounds are broken down into lighter and more volatile compounds. During active composting, VOCs are quickly volatilized and emissions rapidly diminish during composting. Studies indicate that odour generation is often greatest during the first ten days of composting. Available data indicates that VOC emissions are well below acceptable limits. The available data generally indicates that facilities where food wastes or mixed wastes are composted have a higher likelihood to generate these types of emissions.

The production of synthetic VOCs are best prevented and minimized through the removal of VOC contributors prior to composting. This includes the source separation of materials such as solvents, paints, adhesives and aerosols. Source separation programs might include the collection of these household hazardous wastes. If a compost facility is enclosed, emission control systems are normally used to capture and treat the building air. The generation of odours at a compost facility is best avoided by maintaining aerobic compost conditions. Proper designs of the composting system, proper management of the composting process and odour control measures (e.g. chemical scrubbers and biofilters) are all methods to prevent and minimize odours.

Studies have also been completed with respect to air emissions at materials recovery facilities (MRFs) and Mixed Waste Processing facilities. Emissions associated with these facilities are typically observed inside the facility. Emissions include exhaust fumes from waste collection vehicles and mobile equipment, bioaerosols and gases emissions. The bioaerosols and gases emissions (VOCs) are directly related to the mixed waste facilities. This is due to the unsorted nature of the waste stream and the presence of large quantities of organic materials. Mitigation of air emissions within materials processing facilities is often by emission control systems to collect and treat the air.

Following the review of available literature, it was identified that effects on the natural environment from 3Rs facilities was not substantively documented.

2.2.2 3Rs Component Operator Contacts/Interviews

In order to better estimate potential effects on the natural environment, a number of operators of various 3Rs components were contacted. It was felt that the first hand

knowledge or experience of an operator may provide some insight into environmental effects not previously identified and on new or innovative mitigation measures.

A list of 3Rs components was identified at the outset as having some potential to result in effects on the natural environment. A number of operator contacts were identified, with the assistance of the technical study team, for each of the components. It was noted that variations of compost and processing facilities exist based on the type of waste being received. It was anticipated, as a result of the literature review, that potential effects from a compost facility may be more dependent on waste type than at a processing facility. When contacting operators, it was a priority to identify a cross-section of operations, based on waste type, for interviews. This would include facilities managing residential wastes and also facilities managing wastes from the institutional, commercial and industrial (IC&I) sectors.

The 3Rs components for which operators were to be interviewed included:

- Compost
 - In-vessel
 - Windrow
- Processing
 - Mixed Waste
 - Materials Recovery
 - Residential Blue Box
 - IC&I Wastes
 - Wet/Dry
- Household Hazardous Wastes - Permanent Depot

A list of the 3Rs facility operators who were contacted including operator/contact name, location, date of interview and facility type are included in Schedule A.

A number of questions were prepared to guide each interview and to ensure consistency in the collection of information. Based on the literature review and discussions with the study team, many effects associated with 3Rs components were identified as being related to the social environment. Consequently, the prepared questions were developed, and interviews conducted with the social impact assessment study team members. The list of questions which were used as the basis for the interviews is also included in Schedule A.

The majority of effects identified by 3Rs facility operators related to aquatic systems including ground and surface water resources. The potential effects were not typically a result of the location of a facility. Most facilities (processing and compost) were

purposely sited at existing landfill sites since it was viewed that these locations had already impacted the environment and that appropriate controls were in place to minimize effects to the natural environment (e.g. leachate collection, surface water management). Other locations chosen by operators for facilities that were considered compatible and appropriate land uses were industrial areas and municipal works yards. One respondent who operates a windrow compost facility did express some concern with the close proximity of the facility to a floodplain.

Potential effects to ground and surface water resources were identified for compost facilities and household hazardous waste depots. No effects were identified for processing facilities as there was no discharges from any of these dry waste processing facilities. Most centralized compost facilities whether in-vessel or windrow have some type of mitigative controls in place to minimize effects. The discharge of leachate was identified as a potential effect from compost facilities. Many facilities collect the leachate and recirculate it as process water, resulting in a closed loop operation. Other operators indicated that collected leachate was either hauled directly to a sewage treatment plant or discharged to the sanitary sewer. Virtually all compost facilities contacted have some form of surface water management program in place. Compost sites are graded so that surface water drains away from the compost to collection ditches or a pond. Facilities are also surrounded by berms or ditches to prevent surface water runoff from entering the compost area. At some facilities the surface/storm water management system is also used to collect any leachate. In these circumstances the compost area is covered with a layer of low permeability asphalt or some other material to prevent leachate from migrating downwards. Leachate may then drain on the surface to the collection system. Collected surface water is monitored and treated, if required.

Similar to other 3Rs facilities, the permanent household hazardous waste depot included controls to prevent effects to ground and surface waters. The facility contacted was located at an existing landfill site. Design features are included in the facility to prevent discharge of wastes to the environment. This includes self contained areas for different types of HHW with separate sump drains. No drains are connected to a sewer system. Wastes collected in the sump are pumped out and managed accordingly. The area surrounding the depot is graded and sloped to its own sump drain to collect any spilled wastes.

No specific effects to terrestrial systems and resources were identified through the operator interviews. However, it was noted that some facilities had undergone site selection processes to identify the most suitable location for the facility. Typically a facility was often located at an existing landfill site, in an industrial area, or municipal

works yard since these locations were already developed and would not result in further effects to the terrestrial environment.

With respect to effects to the atmospheric environment, the main effect identified was odours from compost facilities. These odours were always attributed to operational problems. Improving operating methods and installing emission controls (e.g. biofilters) resulted in improved conditions. Other effects mentioned included dust and from one facility, fog. The fog was the result of poor compost facility design and operation which resulted in a large amount of moisture loss from the compost. Potential effects to the atmosphere may also result from accidents or spills at a household hazardous waste depot. The facility contacted had an air exchange/filtering system in place and continual air quality monitoring to mitigate any potential effects to the atmospheric environment.

2.2.3 Complaint/Compliance Survey of 3Rs Facilities

The literature review and operator contacts typically identified potential effects to the natural environment from the point of view of the 3Rs facility proponent. To identify any potential effects, from an alternate point of view, it was proposed that a review of recorded complaints or compliance reports be undertaken. Complaints registered by the public with respect to the operation of an approved 3Rs component are kept on file by the regulating agency, the Ministry of Environment and Energy (MOEE). These records are typically kept by the Regional Offices and Investigations and Enforcement Branch (IEB). The non-compliance with approved operating conditions is also recorded by the IEB. A review of recorded information on complaints and IEB actions taken at 3Rs facilities within the Greater Toronto Area was subsequently undertaken by the MOEE. The information collected by the MOEE was then reviewed to identify if any complaints or cases of non-compliance were related to effects on the natural environment and the degree of severity of the effects. Mitigative measures taken, if any, were not identified as part of the MOEE's data gathering process.

The majority of complaints recorded were for odours from compost facilities. Odours were also attributed to a facility transferring and processing food wastes. The only other emissions to the atmosphere noted was dust. The sources of the emissions were a transfer/materials processing facility and also from the chipping of wood or brush for composting. Few complaints were observed with potential effects to aquatic systems and water resources. However, leachate was observed at a central compost facility and storm water runoff from another compost facility was identified as the cause of odours in a nearby storm sewer.

No complaints or reports of non-compliance were identified resulting in potential effects to terrestrial systems and resources.

2.3 Assumptions

The natural environment includes land, water, plant and animal life, and air aspects of the natural environment. Each of these environments are very diverse across the GTA. This diversity includes a wide variety of significant features and resources. The implementation of an alternative 3Rs system may potentially affect the natural environment within the GTA. However, for some components, the effect to the existing GTA environment will be dependent upon the specific location of the system components (i.e. facilities) and the existing environment in the vicinity of the components.

For the purposes of this study, no site-specific locations for 3Rs components are identified. However, when considering potential effects to the natural environment, typical locations for components are considered.

The potential "worst case" effects on the various aspects of the natural environment are recognized for a typical location. Effects on specific natural environment systems or resources within the GTA are not identified.

It is also noted that when considering potential effects, only those effects directly attributable to a 3Rs component or system were identified. Effects to other aspects of the natural environment which may occur as a result of the 3Rs component or system were not identified or considered. For example, a central compost facility was identified as having potential effects to terrestrial systems and aquatic systems due to siting the facility and from discharges of leachate or stormwater from the facility to ground or surface waters. However, the effects to the natural environment (i.e. terrestrial systems and aquatic systems) from the decreased reliance on waste disposal (e.g. landfilling) as a result of the increased level of composting, were not considered. Another example of effects not considered was the effects to the natural environment from the actual recycling process for a material (e.g. effects from effluents of a recycling process) as opposed to the diversion of the material from the waste stream by a 3Rs system which allows the material to be recycled.

Mitigative measures identified to minimize the potential effects typically fall within two categories. These categories are the siting of any facility and the installation of facility design features to control or minimize any potential effects. It was assumed that mitigation was available within these categories.

Based on the data collection, virtually all potential effects to the natural environment from 3Rs components are attributed to components which require a Certificate of Approval (C of A) from the MOEE. This C of A is required to both establish and operate components such as transfer stations, depots, materials recovery/processing facilities and compost facilities. As a result, it was assumed that any 3Rs component of this nature would be developed in a manner that fulfils the necessary MOEE approvals. The resultant net effects for these 3Rs components are consequently assumed to be within, and to meet, the applicable standards and regulations in Ontario.

3 EXISTING CONDITIONS

The following presents a discussion of the existing natural environment conditions in the Regions of Durham, Metro Toronto, York and Peel. The descriptions are a general overview of the conditions in each Region for geology/ground water, surface water and biological aspects of the natural environment. The information is provided to identify existing natural environment conditions in the Regions to provide a basis for assessing the alternative 3Rs systems. These descriptions are used to facilitate the prediction of potential effects to the natural environment, when comparing and evaluating the alternative 3Rs systems. Much of the information presented in the descriptions is based on Dillon and Gartner Lee (1987) and MacLaren (1990).

3.1 Durham

3.1.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Ground Water Overview

The geologic and ground water conditions within Durham Region can be quite variable, largely owing to the fact that the area has been glaciated several times in recent geologic history. Fortunately, there has been a great deal of study in the area, and therefore the geologic and ground water conditions are reasonably well mapped. Within the Region there are five very broadly defined geologic/ground water settings:

- Shallow Bedrock
- Lake Ontario Shoreline
- South Slope Till Plain
- Oak Ridges Moraine
- North Slope Till Plain

Major Aquifers

Major aquifers occur throughout the Region of Durham. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area. Municipal and domestic water supplies are provided from overburden aquifers. Lesser quantities of generally poorer quality water are available from bedrock aquifers throughout most of the Region.

Aquifer characteristics of the overburden fall into four broad areas based on physiographic and stratigraphic relationships. These are:

- Oak Ridges Moraine;
- South Slope;
- North Slope;
- Shallow Overburden.

Ground Water Use

Much of the southern portion of Durham Region, south of the Oak Ridges Moraine, is urban land which is serviced by water from Lake Ontario. Urban growth is expanding northward from the built-up area along the Lake Ontario shoreline. As this occurs, communities are switching from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex are therefore gradually being abandoned as a source of domestic water supply. However, the demand for municipal ground water supplies from the Oak Ridges Moraine has increased in recent years from communities to the north as residential development continues to increase the demand for water.

Bedrock aquifers are not heavily utilized as a source of municipal or domestic water in Durham Region due to the relatively poor aquifer characteristics of the bedrock. Exceptions to this occur where there is a shallow depth to bedrock and no alternative water supplies are available.

3.1.2 Surface Water and Surface Water Use

Drainage

The Region of Durham is situated in three major watersheds, namely:

- Lake Simcoe/Georgian Bay;
- Lake Ontario; and
- Trent River System.

The drainage divide between these three major watersheds runs from east to west.

The northwestern quarter (approximately) of Durham drains northwest to the Lake Simcoe/Georgian Bay flow system. The major streams in this area are:

- Black River;
- Pefferlaw Brook; and
- Beaverton River.

The remainder of the Region drains to Lake Ontario. The southerly half (approximately) of Durham drains directly to Lake Ontario. The major streams in this area are:

- Rouge River;
- Duffin Creek;
- Lynde Creek;
- Pringle Creek;
- Oshawa Creek;
- Farewell Creek;
- Bowmanville Creek;
- Wilmot Creek; and
- Ganaraska River (part).

The northwestern quarter (approximately) of Durham drains to the Trent River System. Drainage from Lake Scugog is north and east via the Trent River System discharging eventually to Lake Ontario. The major streams in this area are:

- Nonquon River; and
- East Cross Creek.

The major surface water body in the area is Lake Ontario. The Region of Durham borders on Lake Ontario. Two other major lakes in the Region include Lake Simcoe and Lake Scugog.

Stream Water Quality

A number of active water quality stations are located on rivers and streams in the Region. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition to routine data collection, special studies have been undertaken on some watercourses, including Wilmot Creek.

Water quality in streams in the area is generally impacted by surface water runoff from:

- urban land use;
- transportation corridors; and
- agricultural land use.

Better water quality is likely to be found in the head water areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low. Important fisheries occur in several streams throughout the area.

Lakes

As indicated previously, there are three major lakes in the study area:

- Lake Ontario;
- Lake Simcoe; and
- Lake Scugog.

Lake Ontario has received much study by provincial and federal agencies, due to its important role as a source of drinking water to communities along its shore and its high recreational value.

Persistent toxic substances and eutrophication have been identified as problems in Lake Ontario by the International Joint Commission and its member agencies.

A number of areas of concern have been identified in the Great Lakes including two near the Region, namely Toronto Harbour and Port Hope, respectively. Provincial Water Quality Objectives are exceeded in these areas. As a result, intensive studies have been initiated to develop remedial action plans.

Eutrophication has long been recognized as a problem in the lower Great Lakes. Annex 3 of the 1978 Great Lakes Water Quality Agreement between Canada and United States outlines reductions in phosphorus loadings to Lake Ontario to be achieved by the parties to the Agreement. As a result, the provincial and federal governments are jointly working towards a program to reduce the input of phosphorous through point source and non-point source remedial measures.

Lake Simcoe has also received attention in recent years, primarily as a result of impairment of water quality from agricultural activities. The Lake Simcoe Environmental Management Studies (Lake Simcoe Environmental Management Committee, 1985) found

that the Lake is receiving an excessive supply of phosphorous which is contributing to eutrophication problems and identified various remedial measures that should be undertaken. The general water quality in the Lake is adequate for most recreational activities but localized problems occur.

Lake Scugog was investigated by the MOEE as part of its Recreational Lakes Program. At that time, water quality was found to be generally acceptable; however, bacteriological contamination was identified in some localized areas and the lake was found to be highly enriched and supported excessive amounts of aquatic plants and suspended algae.

Surface Water Use

Surface water in Durham Region is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation.

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.1.3 Biological Characterization

The portion of the study area which drains to Lake Ontario is heavily urbanized. This has resulted in negative impacts on streamflow and water quality, which in turn have affected the structure of fish communities. Natural vegetation consists of remnant woodlots and treed river valley and ravine areas. These areas provide habitat for plant and animal species.

Major rivers in or near Durham Region within the Lake Ontario drainage basin include the Rouge and Ganaraska. Considerable effort has been expended in developing an anadromous salmonid fishery in this area. Major watercourses in the Region within the Lake Simcoe drainage basin include Pepperlaw Brook and Beaverton River. These watercourses generally support warm-water fish populations. Agricultural land uses are prominent in the basins of the watercourses draining to Lake Simcoe.

The Oak Ridges Moraine is a prominent topographic feature in Durham Region which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. It lies in an east-west direction in the middle of the area. The Moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of cold and cool-water streams.

The southern part of the study area is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of the Rouge River. The northern part of the study area is situated within the Great Lakes - St. Lawrence Forest Region.

The biology of most of Durham Region has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.2 Metro Toronto

3.2.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions within Metro Toronto are variable, mainly due to the fact that the general area has been glaciated several times in recent geologic history. Generally, the geologic and ground water conditions are reasonably well understood in the area. Within Metro Toronto there are three very broadly defined geologic/ground water settings:

- Shallow Bedrock
- Lake Ontario Shoreline
- South Slope Till Plain

Major Aquifers

Major aquifers occur throughout Metro Toronto. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area.

Aquifer characteristics of the overburden fall into two broad areas based on physiographic and stratigraphic relationships. These are:

- South Slope; and
- Shallow Overburden.

Ground Water Use

Metro Toronto is generally urban land which is serviced by water from Lake Ontario. Urban growth has expanded northward from the Lake Ontario shoreline. Communities in Metro Toronto have switched from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex have been replaced as a source of domestic water supply. Bedrock aquifers are not typically utilized in Metro Toronto either.

3.2.2 Surface Water Characterization

Drainage

Metro Toronto is situated in the Lake Ontario watershed. Surface water in Metro Toronto drains southwards to Lake Ontario.

The major streams and surface water drainage areas within Metro Toronto are:

- Etobicoke Creek
- Mimico Creek
- Humber River
- Don River
- Highland Creek and
- Rouge River.

The major surface water body in the Region is Lake Ontario. Metropolitan Toronto borders on the northern shoreline of Lake Ontario.

Stream Water Quality

Water quality stations are located on rivers and streams in Metro Toronto. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition, to routine data collection, many special studies have been undertaken throughout the area including Mimico Creek, Humber River and the Don River.

Water quality in streams in the Region is generally impacted by both point source and diffuse source inputs including:

- industrial discharges;
- urban land use; and
- transportation corridors.

Provincial Water Quality Objectives are exceeded for several parameters at stations throughout the Region.

Lakes

Lake Ontario has received much study by provincial and federal agencies due to its important role as a source of drinking water to communities along its shore, and its high recreational value.

Persistent toxic substances and eutrophication have been identified as problems in Lake Ontario by the International Joint Commission and its member agencies.

Areas of concern have been identified in the Great Lakes including one in Metro Toronto, namely Toronto Harbour. Provincial Water Quality Objectives are exceeded at this location. As a result, intensive studies have been initiated to develop remedial action plans.

Surface Water Use

Surface water is used for a wide variety of purposes in Metro Toronto including:

- aquatic life
- recreation
- drinking water supply
- industrial water; and
- waste assimilation.

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.2.3 Biological Characterization

The Region of Metro Toronto which drains to Lake Ontario is heavily urbanized. This has resulted in negative impacts on streamflow and water quality, which in turn have affected the structure of fish communities. Natural vegetation consists of remnant woodlots and treed river valley and ravine areas. These areas provide habitat for plant and animal species.

Major rivers in Metro Toronto and within the Lake Ontario drainage basins include: the Humber, Don and Rouge. Considerable effort has been expended in developing an anadromous salmonid fishery in this area.

The Oak Ridges Moraine is a prominent topographic feature north of Metro Toronto which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. The moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of the cold and cool-water streams.

Metro Toronto is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of the Rouge River.

The biology of the Metro Toronto area has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.3 York

3.3.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions within York Region are variable, largely owing to the fact that the area has been glaciated several times in recent geologic history. There has been a great deal of study in the area allowing the geologic and ground water conditions to be reasonably well understood. In the Region there are five very broadly defined geologic/ground water settings:

- South Slope Till Plain
- Oak Ridges Moraine

- North Slope Till Plain
- Schomberg Plains
- Holland Lowlands

Major Aquifers

Major aquifers occur throughout the York Region. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area. Municipal and domestic water supplies are provided from overburden aquifers. Lesser quantities of generally poorer quality water are available from bedrock aquifers throughout most of the Region.

Aquifer characteristics of the overburden fall into three broad areas based on physiographic and stratigraphic relationships. These are:

- Oak Ridges Moraine;
- South Slope; and
- North Slope.

Ground Water Use

Much of York Region, south of the Oak Ridges Moraine, is urban land which is serviced by water from Lake Ontario. Urban growth is expanding northward from the Metropolitan Toronto area. As this occurs, more communities are switching from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex are therefore gradually being replaced as a source of domestic water supply. However, the demand for municipal ground water supplies from the Oak Ridges Moraine and deep overburden aquifers within bedrock valleys are presently increasing for communities in the northern part of the Region (Oak Ridges, Aurora, Newmarket) as residential development continues to increase the demand for water.

Bedrock aquifers are not heavily utilized as a source of municipal or domestic water in the Region due to the abundance of overburden aquifers and the relatively poor aquifer characteristics of the bedrock. Exceptions to this occur where there is a shallow depth to bedrock and no alternative water supplies are available.

3.3.2 Surface Water and Surface Water Use

Drainage

The Region of York is situated in two major watersheds, namely:

- Lake Simcoe/Georgian Bay and
- Lake Ontario.

The drainage divide between these two major watersheds runs from east to west through the middle of the Region. The drainage divide parallels the Oak Ridges Moraine.

The northern half (approximately) of York drains northwest to the Lake Simcoe/Georgian Bay flow system. The major streams in this area are:

- Holland River
- Maskinoge River
- Black River and
- Pefferlaw Brook.

The southerly half (approximately) of York drains to Lake Ontario. The major streams in this area are:

- Humber River
- Don River
- Highland Creek
- Rouge River and
- Duffin Creek.

The major surface water body in the Region is Lake Simcoe.

Stream Water Quality

Active water quality stations are located on rivers and streams in the York Region. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition to routine data collection, many special studies have been undertaken on some watercourses including the Humber River, Don River, Holland River and Black River.

Water quality in streams in the area is generally impacted by both point source and diffuse source inputs including:

- sewage treatment plant effluent;
- industrial discharges;
- urban land use;
- transportation corridors; and
- agricultural land use.

Provincial water quality objectives are exceeded for several parameters at stations throughout the Region. Better water quality is likely to be found in the headwater areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low. Important fisheries occur in several streams throughout the area.

Lakes

Lake Simcoe has received attention in recent years, primarily as a result of impairment of water quality from agricultural activities. The Lake Simcoe Environmental Management Studies (Lake Simcoe Environmental Management Committee, 1985) found that the Lake is receiving an excessive supply of phosphorus which is contributing to eutrophication problems and identified various remedial measures that should be undertaken. The general water quality in the Lake is adequate for most recreational activities but localized problems occur.

Surface Water Use

Surface water in York Region is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation.

3.3.3 Biological Characterization

Major rivers in the Region within the Lake Ontario drainage basin include: the Humber, Don and Rouge. Considerable effort has been expended in developing an anadromous salmonoid fishery in this area. Major watercourses in the Region within the Lake Simcoe drainage basin include: the Holland River, Black River and Pefferlaw Brook. These watercourses generally support warm-water fish populations. Agricultural land uses are prominent in the basins of the watercourses draining to Lake Simcoe.

The Oak Ridges Moraine is a prominent topographic feature in York Region which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. The moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of the cold and cool-water streams.

The southern part of the Region is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of the Rouge River. The northern part of the study area is situated within the Great Lakes-St. Lawrence Forest Region.

The biology of most of the Region has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.4 **Peel**

3.4.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions in the Region of Peel are quite variable. Within the Region there are seven very broadly defined geologic/ground water settings. These settings are:

- Niagara Escarpment;
- Hillsburgh Sandhills;
- Guelph Drumlin Field;
- Oak Ridges Moraine;
- South Slope Till Plan;
- Peel Plain; and
- Lake Iroquois Plain.

Major Aquifers

Major aquifers occur throughout the Region of Peel. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major bedrock and overburden aquifers in the area. Municipal and domestic water supplies are provided from bedrock and overburden aquifers. Peel Region has a complete hydrogeologic setting as a result of its diverse geological history. Generally, relatively permeable glacial deposits in the northern portion of the Region act as ground water recharge areas to overburden aquifers and the bedrock.

Peel Region has a complex hydrogeologic setting as a result of its diverse geological history. In general, relatively permeable glacial deposits (ice contact stratified drift) in the northern portion act as ground water recharge areas to overburden aquifers and the bedrock.

The Amabel bedrock formation in the northwestern corner of the Region is recharged where it is exposed on the surface or is overlain by a thin covering of glacial drift. It forms part of the Guelph - Amabel aquifer which is a major Regional high capacity aquifer, with yields of 0.76 to greater than 3.8 litres per second (10-50 gpm). The permeability of the aquifer is primarily due to chemical dissolution of dolomite along fractures and bedding planes. Shale bedrock to the east of the escarpment has poor ground water yield potential, generally less than 0.15 litres per second (2 gpm) but can reach 0.76 litres per second (10 gpm) if the shale is jointed and has calcareous lenses.

Overburden ground water yields of greater than 0.76 L/s (10 gpm) have been identified in sand and gravel deposits in glacial meltwater channels extending south from Orangeville, in and underlying the Brampton Esker, southwest and northeast of Brampton and in isolated areas throughout the Region. East of the escarpment in the northern half of the Region, ground water yields of 0.15 to 0.76 litres per second (2 to 10 gpm) are obtained from shallow deposits of sands and gravels interbedded with minor clay lenses. In the area north of the escarpment and the southern half of the Region, less permeable clay and till deposits provide yields of less than 0.15 to 0.76 litres per second (2 gpm).

Ground Water Use

Much of the southern portion of the Region of Peel is urban land which is serviced by water from Lake Ontario. Urban growth continues to expand northward from the built-up area (Mississauga) on Lake Ontario. As this growth occurs, communities will continue to switch from traditional ground water supplies to Lake Ontario water. Generally, the

municipalities in Peel Region located north of Brampton rely on ground water as the source of their domestic water supply.

3.4.2 Surface Water Characterization

Drainage

The Region of Peel is situated in two major watersheds, namely:

- Lake Simcoe/Georgian Bay; and
- Lake Ontario.

The majority of Peel Region drains southeast to Lake Ontario. This represents the area south of the Oak Ridges Moraine (approximately).

The major streams in this area are:

- Humber River;
- Credit River;
- Etobicoke Creek; and
- Mimico Creek.

A very small area in the northern part of Peel Region (north of the Oak Ridges Moraine) drains to Georgian Bay and Lake Simcoe. There are no major streams for this drainage system in Peel Region. Surface water drains to the Nottawasaga River, Bailey Creek and Holland River, which are situated outside of the Region.

The major surface water body in the area is Lake Ontario.

Stream Water Quality

Water quality in streams in the Region is generally impacted by point source and diffuse source inputs including:

- industrial discharges;
- urban land use;

- transportation corridors; and
- agricultural land use.

Provincial Water Quality Objectives are exceeded for several parameters at monitoring stations in the Region. Improved water quality is likely to be found in the head water areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low.

Lakes

Lake Ontario is the only major lake in the area. A great deal of study has been conducted on Lake Ontario due to its important role as a source of drinking water to communities along its shore and its high recreational value.

Surface Water Use

Surface water in the Region of Peel is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.4.3 Biological Characterization

Significant natural environment features exist in the Region of Peel. These natural environment features include:

- provincial parks and Conservation Authority lands;
- hazard lands (as identified in official plans);
- environmentally significant areas;
- areas of natural and scientific interest (ANSI's-life and earth sciences);

- provincially and Regionally significant wetlands (Class 1-7);
- OMNR Agreement and *Woodlot Improvement Act* (WIA) forests;
- licensed pits and quarries;
- significant warm-water and cold-water watercourses.

The Region of Peel is located in the Great Lakes St. Lawrence Forest Region. Natural woody vegetation in this regime is characterized by eastern white and red pines, eastern hemlock and yellowbirch. The majority of the forested areas of the Region lie within Caledon reflecting the rural character of the Town. Extensive urban development has removed much of the large wooded areas in the City of Mississauga and to a lesser degree in the City of Brampton. In these areas, forest resources are generally restricted to scattered woodlots, ravines and environmentally protected areas. The forest management potential generally is low in Mississauga, low to moderate in the City of Brampton and moderate to high in the Town of Caledon. Similarly, important wildlife resource areas associated with valley lands, upland habitat (e.g. Niagara Escarpment) and ravines are more concentrated in the Town of Caledon. Important ravines are also associated with the Lake Ontario shoreline.

The cold-water headwaters of the Credit and Humber Rivers lie within the northern half of Caledon which has been identified by MNR as a cold-water stream zone. The Credit River from approximately Highway 403 to Lake Ontario, which has migratory salmonid runs, is a fish sanctuary.

4. ASSESSMENT AND EVALUATION OF THE 3RS SYSTEMS

4.1 Introduction

This chapter outlines the assessment and evaluation of the alternative 3Rs systems, undertaken for each Region, with respect to the natural environment. The assessment and evaluation of the systems includes a net effects assessment of the alternative systems and evaluating the systems for each Region to identify a ranking of systems with respect to the natural environment.

4.2 Approach

A total of six Regionally based residential waste 3Rs systems were developed by the study team for the Regions of Durham, Metro Toronto, York and Peel. Six alternative 3Rs systems were also developed for the institutional, commercial and industrial (IC&I) sectors, but for the GTA as a whole. This was due to the large overlap between the Regions for waste management components serving the IC&I sector. The residential and IC&I systems are described in detail in the EA Input Document.

The net effects analysis of the residential systems was not specifically undertaken for each Region. Due to the large overlap of components for the six systems between the four Regions, the analysis was completed at a generic level of detail. These generic systems included all potential 3Rs components for a particular Regional system. Potential effects, mitigation and net effects were developed for each component category within a system. The component categories included a group of components with similar characteristics. This generic analysis was completed for each indicator of the three criteria within the Natural Environment Criteria Group.

The generic system net effects by component were then reviewed with respect to the specific Regional 3Rs system description. The purpose of this step was to complete a net effects analysis for each individual system for each Region. The specific Regional system descriptions including the identification of components, allowed the corresponding net effects to be identified from the generic system net effects. The net effects for each component category of a particular system were then combined for each criteria indicator, into system net effects by indicator.

The system net effects for each indicator of a criterion were then combined. The resultant system net effects by criterion were used to complete the evaluation of systems. The

advantages/disadvantages of each system, relative to the other systems, were also developed by criterion.

Once the net effects assessment was completed for each 3Rs system within a Region, the six systems were then evaluated. By comparing the relative advantages and disadvantages between the six systems, the systems were ranked for each of the three natural environment criteria. The systems were ranked from highest to lowest for each criteria.

The system rankings for each criteria were then considered in conjunction with a ranking of the three natural environment criteria. The relative differences and trade-offs among the systems were examined based on the importance of the criteria. The result was the development of the overall system rankings for each Region within the Natural Environment Criteria Group.

A similar net effects assessment and evaluation of alternative 3Rs systems was completed for the IC&I sector. However, generic systems and net effects were not developed on a Regional basis. Rather, the IC&I systems were developed for the GTA as a whole. Consequently, the system net effects tables by component completed for the IC&I sector are for the entire GTA and were not completed in a generic manner.

4.3 Net Effects Analysis

The six generic residential and the six IC&I 3Rs systems are described in the EA Input Document. This includes a description of the components and component categories in each system.

The residential systems are: Existing, Existing/Committed, Direct Cost, Expanded Blue Box, Wet/Dry and Mixed Waste Processing. The IC&I systems are: Existing, Existing/Committed, Extended 3Rs Regulations, Expanded 3Rs Regulations, Expanded 3Rs Regulations with Organics and Processing of All IC&I Waste.

The generic system net effects tables by component for the residential sector are presented in Schedule B. The tables contain an assessment of systems for each indicator of the three criteria. The system net effects tables for each Region are presented in Schedule C.

The system net effects tables by component for the IC&I sector are presented in Schedule D. The IC&I system net effects tables are contained in Schedule E.

4.4 Evaluation

4.4.1 Introduction

The evaluation of systems was completed for residential 3Rs systems within the four Regions and for the IC&I systems in the GTA. These evaluations were completed based on the system net effects tables discussed in the previous section and presented in Schedules C and E, and also on the ranking of the natural environment criteria. The ranking of the criteria and the evaluations follows.

4.4.2 Criteria Ranking

The Natural Environment Criteria Group contains three criteria. To assist in identifying a ranking of the 3Rs systems for this criteria group, the individual criteria were ranked. This criteria ranking was completed on the basis of the level of importance of the criteria relative to the other criteria. In order to rank the criteria, consideration was given to the magnitude of effects, duration of effects, significance of effects, certainty of effects and the relative difference among alternative systems being examined for the four Regions and for the GTA overall.

Two categories of importance were identified for the Natural Environment Criteria Group. The criteria "potential for effects to aquatic systems including surface water and ground water resources" and "potential for effects to atmospheric environment" were considered to be equal and the most important. These two criteria were given the highest ranking since potential effects from the 3Rs systems may be significant loss/removal or disruption of aquatic systems and resources, and exceed established regulatory standards with respect to discharges of contaminants to the atmosphere. The duration of these potential effects may also be throughout the life of the alternative. However, the occurrence of the effects is expected to be intermittent and any effects may be reduced by the mitigative measures.

The criterion "potential for effects to terrestrial systems and resources" was ranked lowest since the magnitude of any effects possible from an alternative system are not expected to result in the significant loss/removal or disruption of terrestrial systems and resources. The potential effects which may occur are expected to occur during the short-term. There is also a high potential to mitigate any effects that are predicted to occur. Mitigative measures include following an appropriate site selection process for facilities, the installation of design features to prevent or restrict discharges to the environment, and implementing contingency measures in the event of an accident.

The criteria ranking for the Natural Environment Criteria Group and the rationale for the ranking is provided in Table 4.1.

TABLE 4.1
NATURAL ENVIRONMENT CRITERIA GROUP
CRITERIA RANKING

NATURAL ENVIRONMENT		
Criterion	Rank Order ¹	Rationale
Criterion 1		
Potential for effects to terrestrial systems and resources	3	This criterion is ranked the lowest since the magnitude of effects possible for the range of systems are expected to be within accepted standards. Most effects are unlikely to occur or are expected to occur during the short-term. There is a high potential to mitigate any potential effects by proper siting of new facilities.
Criterion 2		
Potential for effects to aquatic systems including surface water and ground water resources	1	This criterion is ranked the highest since potential effects may be significant exceeding accepted standards. Potential effects may occur throughout the life of the option. The occurrence of the effects is expected to be intermittent. Mitigative measures may reduce effects but will not eliminate them.
Criterion 3		
Potential for effects to atmospheric environment	1	This criterion is ranked the highest since potential effects may be significant exceeding accepted standards. Potential effects may occur throughout the life of the option. The occurrence of the effects is expected to be intermittent. Mitigative measures may reduce effects but will not eliminate them.

1. A ranking of "1" is to represent the criterion considered to be the most important.

4.4.3 Region of Durham Systems Ranking

4.4.3.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for Durham Region, the system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system summary net effects tables contained in Schedule C. The system rankings for the three natural environment criteria are discussed below. The systems rankings, by criterion, are summarized in Table 4.2.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential effects due to accidents was expected to be the same for all systems. The existing (System 1) and Existing/Committed (System 2) systems have all the necessary facilities in place. The required expansion or improvements to existing facilities for System 2 is not expected to result in the loss/removal or disruption of terrestrial systems and resources. These two systems were considered equal and ranked highest. System 3 (Direct Cost) does not require any new facilities. However, under this system there is a higher likelihood of illegal dumping of wastes occurring, making it ranked lower than Systems 1 and 2. Systems 4, 5, and 6 (Expanded Blue Box, Wet/Dry and Mixed Waste Processing, respectively) all require expanded or additional facilities to those which already exist. It is expected that potential effects to terrestrial systems and resources can be effectively mitigated. This includes the siting of new facilities in areas with compatible land uses (i.e. industrial zoned areas). System 4 requires a single new MRF and was ranked second lowest. Similarly, System 6 requires a new Mixed Waste Processing and compost facility at one location. This system was also ranked second lowest since only one new facility was required. The Wet/Dry system (System 5) was ranked lowest since a new MRF and new compost facilities would be required. This system has the highest potential for the loss/removal or disruption of terrestrial systems and resources.

**REGION OF DURHAM
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked with System 2	Highest ranked with System 1	Third lowest ranked	Third highest ranked	Second lowest ranked	Lowest ranked
Potential for effects to terrestrial systems and resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects are due to accidents 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects are due to accidents 	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects are due to accidents illegal dumping of wastes is anticipated and may result in effects 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new MRF potential effects due to accidents 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting of new MRF and new compost facilities potential effects due to accidents 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new mixed waste processing and composting facility potential effects due to accidents
Potential for effects to aquatic systems including surface and ground water resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities 	<p>Third lowest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities illegal dumping of wastes is anticipated and may result in effects 	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharge from existing facilities potential effects due to siting new MRF but no additional discharges 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting new MRF and compost facilities and discharges from new compost facility 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting mixed waste processing/composting facility and discharges from new facility
Potential for effects to the atmospheric environment	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> no processing and composting of mixed wastes or wet wastes emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> no processing and composting of mixed wastes or wet wastes emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> no processing and composting of mixed wastes or wet wastes emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> no processing and composting of mixed wastes or wet wastes emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions from wet waste composting dependent on compost process 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions from mixed waste processing and composting

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems were expected to occur for reasons similar to effects on terrestrial systems and resources (i.e. location of facility, discharges from the facility, accidents). However, additional effects to aquatic systems may occur due to discharges from 3Rs facilities. These discharges are expected to be in the form of leachate or contaminated surface water runoff from central compost facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all systems. Since the necessary facilities already exist for Systems 1 and 2, these systems were ranked equal and highest. No additional effects were expected due to the expansion of the existing MRF in System 2. System 4 was ranked third highest, ahead of System 3. The Expanded Blue Box system (System 4) requires a new MRF but no new discharges are expected since only dry recyclable materials are processed. System 3 (Direct Cost) does not require a new facility but it is anticipated that illegal dumping of wastes will occur as a result of this system. This dumping of wastes and its potential effects on aquatic systems make it ranked lower. Systems 5 and 6 were considered equal and ranked lowest. Both systems require new 3Rs facilities, including central compost facilities. The potential effects on aquatic systems from these new facilities were expected to be greater than any other system.

Potential for Effects to the Atmospheric Environment

All six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, and gases generated at MRFs and compost facilities; with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. System 1 to 4 do not include the management of wet waste or mixed waste. These four systems were considered equal and ranked highest. System 5 includes the composting of wet waste while System 6 includes Mixed Waste Processing and composting. Due to the different nature of the two processes, with wet waste composting likely to be done using in-vessel technology and Mixed Waste Processing being open to the atmosphere (i.e. windrow technology), the potential effects of System 6 were considered to be the greatest and the system was ranked lowest.

4.4.3.2 Overall System Ranking

By considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. The Existing and Existing/Committed systems were ranked highest for each of the three criteria. As a result, these systems were ranked highest overall for the Natural Environment Criteria Group. System 4 was ranked second highest. This system was ranked lower than Systems 1 and 2 due to potential effects to terrestrial systems and resources, and aquatic systems and water resources from siting a new MRF and central compost facility. System 3, although requiring the same new facilities, was ranked lower than Systems 1, 2 and 4, and was ranked third lowest overall. The potential effects on terrestrial systems and aquatic systems from illegal dumping of wastes result in the lower ranking.

The Wet/Dry (System 5) and Mixed Waste Processing (System 6) systems were the second lowest and lowest ranked systems for all three criteria. System 6, Mixed Waste Processing, was the lowest ranked system overall. Potential effects to the atmospheric environment from Mixed Waste Processing (System 6) were considered to be greater than for System 5. The potential effects for the other criteria were considered equal for these two systems.

4.4.4 Metro Toronto Systems Ranking

4.4.4.1 Ranking of Systems by Criterion

The 3Rs systems for Metro Toronto were ranked by initially ranking the six system alternatives by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system summary net effects tables for the Region of Metro Toronto. These tables are contained in Schedule C. The system rankings for each of the three natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.3.

When evaluating Systems 6A and 6B, these systems were considered to be the same with respect to the natural environment. These systems were combined and referred to as System 6 for the evaluation.

TABLE 4.3

**METRO TORONTO
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
	Highest ranked	Second highest ranked with System 4	Second lowest ranked	Second highest ranked with System 2	Third lowest ranked	Lowest ranked
Natural						
Potential for effects to terrestrial systems and resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already existing potential effects are due to accidents 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects are due to accidents 	<p>Second lowest ranked</p> <p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects are due to accidents higher likelihood of illegal dumping of wastes is anticipated and may result in effects 	<p>Second highest ranked with System 2</p> <p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects due to accidents 	<p>Third lowest ranked</p> <p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting of one to two new MRFs and new compost facility potential effects due to accidents 	<p>Lowest ranked</p> <p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new mixed waste processing and composting facility potential effects due to accidents
Potential for effects to aquatic systems including surface and ground water resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects due to discharges from existing facilities and new compost facility new central compost facility is in-vessel facility 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects due to discharges from existing facilities and new compost facility new central compost facility is in-vessel facility higher likelihood of illegal dumping of wastes is anticipated and may result in effects 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facility and one to two new MRFs potential effects due to discharges from existing facilities and new composting facilities new central compost facility is in-vessel facility 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting one to two new MRFs and siting new compost facility potential effects due to discharges from existing compost facilities and discharges from new compost facility 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting mixed waste processing/composting facility and discharges from new mixed waste facility

TABLE 4.3

METRO TORONTO
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
 (continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	Highest ranked due to: <ul style="list-style-type: none">no processing and composting of mixed wastes or wet wastesemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">composting of wet wastes at in-vessel facilityemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">composting of wet wastes at in-vessel facilityemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">composting of wet wastes at in-vessel facilityemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Second lowest ranked due to: <ul style="list-style-type: none">emissions to atmosphere include dust, exhaust, odours, bioaerosols and gasescomposting of wet wastes at in-vessel facilityadditional emissions from increased wet waste composting	Lowest ranked due to: <ul style="list-style-type: none">emissions to atmosphere include dust, exhaust, odours, bioaerosols and gasesadditional emissions from mixed waste processing and composting

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources are predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset conditions. The potential for effects due to accidents was expected to be the same for all six systems. System 1, the Existing system, has all of the required facilities in place. Potential effects are expected only as a result of accidents. The Existing system was ranked highest for this criterion. The Existing/Committed, Expanded Blue Box, Wet/Dry and Mixed Waste Processing systems (Systems 2, 4, 5 and 6, respectively) were considered equal and each ranked second highest. Systems 2, 4 and 5 all include the same new 3Rs facilities, resulting in similar effects to terrestrial systems and resources for the systems. The new facilities include a central compost facility and one to two new MRFs. System 6 does not include the compost facility and MRFs, but includes a new Mixed Waste Processing and composting facility. Potential effects are due to siting this facility and are expected to be similar to the effects of Systems 2, 4 and 5.

System 3, the Direct Cost system, also includes the same new 3Rs facilities as are required for Systems 2, 4 and 5. However, this system is ranked lower due to the higher likelihood of illegal dumping of wastes and its resulting effects. The Direct Cost system was the lowest ranked system in terms of potential for effects to terrestrial systems and resources.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems and water resources were expected due to facility location, discharges from a facility and accidents. Leachate or contaminated surface water runoff from central compost facilities was expected to result in the most significant effects. All systems were considered equal with respect to effects as a result of discharges from existing facilities. System 1 was ranked highest since it has all facilities in place. Systems 2, 4 and 5 were ranked equally and second highest. These three systems require the same new 3Rs facilities. This includes a new central compost facility and one to two new MRFs. Since the compost facility is an in-vessel facility potential effects due to discharges are expected to be minimal.

System 3 and System 6 were both ranked lowest. Direct Cost system has the same new facility requirements as Systems 2, 4 and 5. However, due to the higher likelihood of illegal dumping of wastes in the Direct Cost system, the system was ranked lower. System 6 requires only a new Mixed Waste Processing facility. The potential for effects

due to discharges from this facility was considered to be greater than those facilities required by the other system. This is since the central compost facility required by the other systems is an in-vessel facility.

Potential Effects to the Atmospheric Environment

The six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, bioaerosols and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmosphere from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. System 1 does not include the management of wet or mixed wastes. Systems 2, 3 and 4 include the composting of a small amount of wet wastes annually at an in-vessel compost facility. Due to the small quantities and type of facility, no quantifiable difference in emissions was expected for these systems, relative to System 1. These four systems were equally ranked as highest.

The Wet/Dry system (System 5) was ranked second lowest of the systems. This system relies on an increased level of wet waste composting. As a result additional emissions are expected. System 6 was ranked lowest. This system includes the processing and composting of mixed wastes. This system is lowest ranked due to the nature of the wastes being managed and since the processing and composting of wastes is less controlled than at an in-vessel compost facility.

4.4.4.2 Overall System Ranking

Combining the ranking of systems by criterion and the criteria rankings allows an overall system ranking to be completed for the Natural Environment Criteria Group. For each of the three criteria, the Existing system was ranked highest. System 1 was the highest ranked system overall. Systems 2 and 4 had the same ranking for each of the three criteria. These two systems were both ranked second highest. Systems 2 and 4 were ranked lower than System 1 due to potential effects to terrestrial systems and aquatic systems as a result of siting new 3Rs facilities and discharges from the new compost facility. System 5 (Wet/Dry) was ranked only slightly lower than Systems 2 and 4, and

third lowest overall. This lower ranking was due to the potential for effects to the atmospheric environment from an increase in the amount of wet waste composted.

System 3 (Direct Cost) was ranked second lowest of the systems overall. The Direct Cost system requires the same new 3Rs facilities as the Existing/Committed and Expanded Blue Box systems. The higher likelihood of illegal dumping of wastes occurring in the Direct Cost system, and its effects to terrestrial and aquatic systems, is the reason for the lower ranking. When compared to the Wet/Dry system, Direct Cost is also ranked lower. Both System 3 and 5 require the same new facilities. However, the potential effects to terrestrial and aquatic systems as a result of illegal dumping of wastes within System 3 are expected to be more significant than the increase in emissions to the atmosphere from increased wet waste composting in System 5. Wet wastes are composted in an in-vessel facility.

System 6 was ranked lowest overall for the six systems. This system was expected to have the greatest potential for effects to the atmosphere from Mixed Waste Processing and composting. Similarly, potential effects to aquatic systems were expected to be the greatest of all systems due to siting of the mixed waste facility and discharges from the facility.

4.4.5 Region of York Systems Ranking

4.4.5.1 Ranking of Systems by Criterion

A ranking of the 3Rs systems for York Region was identified by initially ranking the system alternatives by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the Region of York's individual system summary net effects tables contained Schedule C. The system rankings for the three natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.4.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

TABLE 4.4

REGION OF YORK
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked	Second highest ranked with System 4	Second lowest ranked	Second highest ranked with System 2	Third lowest ranked	Lowest ranked
Potential for effects to terrestrial systems and resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already existing potential effects are due to accidents 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting two new central compost facilities potential effects are due to accidents new MRF and in-vessel compost facility being developed 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting two new central compost facilities potential effects are due to accidents higher likelihood of illegal dumping of wastes is anticipated and may result in effects new MRF and in-vessel compost facility being developed 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting two new central compost facilities potential effects due to accidents new MRF and in-vessel compost facility being developed 	<p>Third lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting of new MRF (if required) and two new compost facilities potential effects due to accidents new MRF and in-vessel compost facility being developed 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting two new central compost facilities and new mixed waste processing and composting facility potential effects due to accidents new MRF and in-vessel compost facility being developed

TABLE 4.4

REGION OF YORK
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
 (continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to aquatic systems including surface and ground water resources	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facilities potential effects due to discharges from existing facilities and new compost facilities new MRF and in-vessel compost facility being developed 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facilities potential effects due to discharges from existing facilities and new composting facilities new MRF and in-vessel compost facility being developed higher likelihood of illegal dumping of wastes is anticipated and may result in effects 	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to siting new central compost facilities potential effects due to discharges from existing facilities and new composting facilities new MRF and in-vessel compost facility being developed 	<p>Third lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting new MRF (if required) and compost facilities and discharges from new compost facilities new MRF and in-vessel compost facility being developed 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting compost facilities, and mixed waste processing/composting facility and discharges from new compost and mixed waste facilities new MRF and in-vessel compost facility being developed
Potential for effects to the atmospheric environment	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> no processing and composting of mixed wastes or wet wastes emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> composting of wet wastes at in-vessel compost facility emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> composting of wet wastes at in-vessel compost facility emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> composting of wet wastes at in-vessel compost facility emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases composting of wet wastes at in-vessel compost facility additional emissions from increased wet waste composting 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases some wet wastes composted at in-vessel compost facility additional emissions from mixed waste processing and composting

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential effects due to accidents was expected to be the same for all systems. The Existing system (System 1) has all of the required facilities in place. Potential effects are expected only as a result of accidents. The Existing system was highest ranked. The Existing/Committed and Expanded Blue Box systems (Systems 2 and 4, respectively) require 3Rs facilities in addition to those which already exist. These facilities include a new MRF and in-vessel compost facility which are already being developed as part of System 2. Two additional central compost facilities are also part of these two systems. By siting these facilities in areas with compatible land uses (i.e. landfill sites, industrial areas) it is anticipated that potential effects to terrestrial systems and resources can be effectively mitigated. Systems 2 and 4 were considered to be both ranked second highest.

The Direct Cost (System 3) and Wet/Dry (System 5) systems both require the same new facilities as Systems 2 and 4. However, additional effects are anticipated for System 3 due to a higher likelihood of illegal dumping of wastes occurring. System 5 may require a new MRF to process a larger quantity of dry recyclables if the MRF now being developed cannot be expanded. The potential effects for System 5 are expected to be less than for System 3. If a new MRF is required, the potential effects can largely be mitigated through an appropriate site selection process. The illegal dumping of wastes is expected to occur during the operating life of the Direct Cost system, making this system ranked lower than System 5.

System 6 (Mixed Waste Processing) requires a new Mixed Waste Processing and composting facility in addition to the same new facilities identified for the Existing/Committed system. Due to the area typically required for a mixed waste facility, System 6 is predicted to have the highest potential for effects to terrestrial systems and resources.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Similar to effects on terrestrial systems and resources, potential effects to aquatic systems were expected due to facility location, discharges from a facility and accidents. The largest potential for effects was expected to be as result of leachate or contaminated surface water runoff from central compost facilities. All systems were considered equal

with respect to effects as a result of discharges from existing facilities. System 1, for which all the facilities exist, was ranked highest. Systems 2 and 4 both have a new MRF and in-vessel compost facility. These facilities are presently being developed. In addition, these systems also include two more central compost facilities. Systems 2 and 4 were both ranked second highest.

The Direct Cost (System 3) and Wet/Dry (System 5) systems include the same new facilities as Systems 2 and 4. System 5 may require a new MRF if the facility presently being developed cannot be expanded. The effects of a new or expanded MRF on aquatic systems are not expected to be significant since only dry recyclables are processed. The likelihood of illegal dumping of wastes as a result of a Direct Cost system will result in increased effects to aquatic systems and water resources. System 3 was ranked lower than System 5 and second lowest for this criterion.

System 6 requires a new Mixed Waste Processing facility in addition to the new facilities common to Systems 2 to 5. The potential effects on aquatic systems from this system were anticipated to be greater than any other system.

Potential Effects to the Atmospheric Environment

All six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, bioaerosols, odours and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures of the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. System 1 does not include the management of wet wastes or mixed wastes. Systems 2, 3 and 4 include the composting of a small annual quantity of wet wastes at an in-vessel compost facility. Due to the type of facility and small quantities, no appreciable difference in emissions to the atmosphere is expected between Systems 1 to 4. These systems were all ranked highest. The Wet/Dry system (System 5) was ranked lower than these systems due to the substantive increase in the quantities of wet waste composted. The Mixed Waste Processing system (System 6) was ranked lowest due to the nature of the wastes and the processing method being typically open to the surrounding atmosphere.

4.4.5.2 Overall System Ranking

When considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. The Existing system (System 1) was ranked highest for each of the three criteria. As a result, this system was ranked highest ranked overall. Systems 2 and 4 were ranked equal and second highest. These systems were ranked lower than System 1 due to potential effects to terrestrial systems and resources, and aquatic systems and water resources, from siting new 3Rs facilities and potential discharges for existing and new compost facilities. System 5 was ranked slightly lower than Systems 2 and 4 and third lowest overall. This system may require a MRF in addition to the same facilities included in Systems 2 and 4. This new facility may result in additional effects to both terrestrial and aquatic systems.

The Direct Cost system (System 3) was ranked second lowest of the systems. This system requires the same new 3Rs facilities as Systems 2 and 4. However, this Direct Cost system has a higher likelihood of illegal dumping of wastes, resulting in additional effects to terrestrial systems and aquatic systems. The Direct Cost system was also ranked lower than Wet/Dry since the effects of illegal dumping were considered to be more significant than the potential effects of another new MRF (if required) and the increased emissions to the atmosphere from increased wet waste composting. Wet waste is composted in an in-vessel facility for both systems but at increased quantities in System 5.

System 6 was ranked lowest for all three criteria and consequently was ranked lowest overall. This system required the greatest number of new 3Rs facilities resulting in a higher potential for effects to terrestrial systems and aquatic systems. Potential effects to the atmospheric environment from Mixed Waste Processing were also considered to be greater than emissions from any of the other five systems.

4.4.6 Region of Peel Systems Ranking

4.4.6.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for the Region of Peel, the six system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The systems rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system summary net effects tables for Peel Region contained in Schedule C. The system rankings for the three

natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.5.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential effects due to accidents was expected to be the same for all systems. The Existing system (System 1) has all of the necessary facilities in place. Potential effects are expected only as a result of accidents. This system was ranked highest. Systems 2 and 4 (Existing/Committed and Expanded Blue Box, respectively) require additional facilities to those which already exist. These facilities are a new MRF and an in-vessel compost facility. It is expected that potential effects to terrestrial systems and resources can be effectively mitigated. This includes the siting of these new facilities in areas with compatible land uses (i.e. industrial zoned areas). These two systems were ranked equal and second highest. System 3 (Direct Cost) requires the same new facilities as Systems 2 and 4. However, under the Direct Cost system there is a higher likelihood of illegal dumping of wastes occurring, making it slightly lower ranked. The potential effects of illegal dumping are expected to be less than the effects associated with the siting of an additional facility in Systems 5 and 6. Systems 5 and 6 were ranked equal and lowest. The Wet/Dry system (System 5) requires a new central compost facility in addition to the new MRF and compost facility identified for the other systems. System 6 requires a new Mixed Waste Processing and compost facility, in addition to the new MRF and central compost facility required by the other systems. These systems were predicted to have the highest potential for the loss/removal or disruption of terrestrial systems and resources.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems were expected to occur for reasons similar to effects on terrestrial systems and resources (i.e. location of facility; discharges from the facility, accidents). However, additional effects to aquatic systems may occur due to discharges

TABLE 4.5

REGION OF PEEL
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked	Second highest ranked with System 4	Third lowest ranked	Second highest ranked with System 2	Second lowest ranked	Lowest ranked
Potential for effects to terrestrial systems and resources	Highest ranked due to: <ul style="list-style-type: none"> necessary facilities already existing potential effects are due to accidents 	Second highest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects are due to accidents 	Second lowest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects are due to accidents higher likelihood of illegal dumping of wastes is anticipated and may result in effects 	Second highest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects due to accidents 	Lowest ranked due to: <ul style="list-style-type: none"> potential effects due to siting of new MRF and new compost facilities potential effects due to accidents 	Lowest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new MRF, central compost facility and mixed waste processing and composting facility potential effects due to accidents
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: <ul style="list-style-type: none"> necessary facilities already exist potential effects due to discharges from existing facilities 	Second highest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects due to discharges from existing facilities and new compost facility 	Third lowest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects due to discharges from existing facilities and new compost facility higher likelihood of illegal dumping of wastes is anticipated and may result in effects 	Second highest ranked due to: <ul style="list-style-type: none"> potential effects due to siting new central compost facility and MRF potential effects due to discharges from existing facilities 	Lowest ranked due to: <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting new MRF and compost facilities and discharges from new compost facilities 	Lowest ranked due to: <ul style="list-style-type: none"> potential effects due to discharges from existing facilities potential effects due to siting MRF, compost facility, and mixed waste processing/ composting facility and discharges from new compost and mixed waste facilities

TABLE 4.5

REGION OF PEEL
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
(continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	Highest ranked due to: <ul style="list-style-type: none">no processing and composting of mixed wastes or wet wastesemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">no processing and composting of mixed wastes or wet wastesemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">no processing and composting of mixed wastes or wet wastesemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">no processing and composting of mixed wastes or wet wastesemissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Second lowest ranked due to: <ul style="list-style-type: none">emissions to atmosphere include dust, exhaust, odours, bioaerosols and gasesadditional emissions from wet waste composting dependent on compost process	Lowest ranked due to: <ul style="list-style-type: none">emissions to atmosphere include dust, exhaust, odours, bioaerosols and gasesadditional emissions from mixed waste processing and composting

from 3Rs facilities. These discharges are expected to be in the form of leachate or contaminated surface water runoff from central compost facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all systems. Since the necessary facilities already exist for System 1, this system was ranked highest. Systems 2 and 4 were ranked equal and second highest. These systems both require a new MRF and central compost facility. The potential effects from these facilities are expected to be minimal since the MRF will process only dry recyclables and the proposed compost facility is an in-vessel compost facility. Discharges from this type of compost facility are more readily controlled. System 3 (Direct Cost) requires these same two new facilities but it is anticipated that illegal dumping of wastes will occur as a result of this system. This dumping of wastes and its potential effects on aquatic systems make it ranked lower than Systems 2 and 4. Systems 5 and 6 were considered equal and ranked lowest. Both systems require new 3Rs facilities in addition to those required for the other systems. These additional facilities are a compost and mixed waste facility, respectively. The potential effects on aquatic systems and resources from these new facilities were expected to be greater than any other system.

Potential Effects to the Atmospheric Environment

All six alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, bioaerosols and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures of the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. Systems 1 to 4 do not include the management of wet waste or mixed waste. These four systems were ranked equal and highest. System 5 includes the composting of wet waste while System 6 includes Mixed Waste Processing and composting. Due to the different nature of the two processes, with the wet waste composting to be done using in-vessel technology and Mixed Waste Processing and composting typically being open to the atmosphere (i.e. windrow technology), the potential effects of System 6 were considered to be the greatest and the system was ranked lowest.

4.4.6.2 Overall System Ranking

By considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. The Existing system was ranked highest for each of the three criteria. As a result, this system was ranked highest overall for the Natural Environment Criteria Group. Systems 2 and 4 were ranked equal and second highest. These systems were ranked lower than System 1 due to potential effects to terrestrial systems and resources, and aquatic systems and water resources from siting a new MRF and central compost facility. System 3, although requiring the same new facilities, was ranked lower than Systems 2 and 4, and was ranked third lowest. The potential effects on terrestrial systems and aquatic systems from illegal dumping of wastes result in the lower ranking.

The Wet/Dry (System 5) and Mixed Waste Processing (System 6) systems were the second lowest and lowest ranked systems for all three criteria. System 6, Mixed Waste Processing, was ranked the lowest system overall. Potential effects to the atmospheric environment from Mixed Waste Processing (System 6) were considered to be greater than for System 5. The potential effects for the other criteria were considered equal for these two systems.

4.4.7 GTA IC&I Systems Ranking

4.4.7.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for the GTA IC&I sector, the system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The systems rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system net effects tables contained in Schedule E. The IC&I system rankings for the three natural environment criteria are discussed below. The system rankings by criterion are summarized in Table 4.6.

Potential for Effects to Terrestrial Systems and Resources

For the IC&I 3Rs systems, effects to terrestrial systems and resources were predicted to occur as a result of expanding existing facilities or from siting new facilities. The existing (System 1) and Existing/Committed (System 2) systems for the IC&I sector do

TABLE 4.6

GTA IC&I
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 Processing of All IC&I Waste
IMPACT						
Natural	Highest ranked with System 2	Highest ranked with System 1	Third highest ranked with System 4	Third highest ranked with System 3	Lowest ranked with System 6	Lowest ranked with System 5
Potential for effects to terrestrial systems and resources	Highest ranked due to: • necessary facilities already exist	Highest ranked due to: • necessary facilities already exist	Third highest ranked due to: • potential effects due to expanding existing MRFs or siting new MRFs	Third highest ranked due to: • potential effects due to expanding existing MRFs or siting new MRFs	Lowest ranked due to: • potential effects due to siting new MRFs and compost facilities	Lowest ranked due to: • potential effects due to siting new MRFs and compost facilities
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: • necessary facilities already exist • potential effects due to discharges from existing facilities	Highest ranked due to: • necessary facilities already exist • potential effects due to discharges from existing facilities	Third highest ranked due to: • potential effects due to discharges from existing facilities • new or expanded MRFs required which may result in additional effects	Third highest ranked due to: • potential effects due to discharges from existing facilities • new or expanded MRFs required which may result in additional effects	Lowest ranked due to: • potential effects due to discharges from existing facilities • potential effects due to siting new MRFs and compost facilities and discharges from new compost facilities	Lowest ranked due to: • potential effects due to discharges from existing facilities • potential effects due to siting new MRFs and compost facilities and discharges from new compost facilities
Potential for effects to the atmospheric environment	Highest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • no increased emissions since no increase in collection or IC&I organics processing	Highest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • no increased emissions since no increase in collection or IC&I organics processing	Third highest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • additional emissions due to increased collection vehicle requirements	Third highest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • additional emissions due to increased collection vehicle requirements	Lowest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • additional emissions due to increased collection vehicle requirements and IC&I organics processing	Lowest ranked due to: • emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases • additional emissions due to increased collection vehicle requirements and IC&I organics processing

not require any new facilities. These two systems were both ranked highest for this criterion. Both Systems 3 and 4 require additional capacity to process larger quantities of dry recyclables. These systems include expansions to existing MRFs, to accommodate these increased quantities, or the siting of new MRFs. The potential effects due to these expansions or new facilities can largely be mitigated by siting facilities in areas of compatible land uses. As a result, Systems 3 and 4 were ranked equally and slightly lower than Systems 1 and 2, or third highest. Systems 5 and 6 require both additional processing capacity for dry recyclables and increased capacity for the composting of wet wastes. These systems will require the siting of new MRFs and new compost facilities. The siting of these facilities is expected to result in a greater potential for effects to terrestrial systems due to the loss or removal of existing terrestrial features. Systems 5 and 6 were equally ranked lowest of the six systems.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems and water resources were expected to occur as a result of siting facilities and discharges from facilities. Effects may include the disruption of local surface water drainage patterns due to the siting of a facility or the discharge of contaminants from facilities. These discharges may include leachate and surface water runoff, containing silt and organic materials, from central compost facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all six of the IC&I systems. Systems 1 and 2 require no new or expanded facilities. These two systems were ranked highest. The new or expanded MRFs necessary to process increased quantities of dry recyclables in Systems 3 and 4 may result in some additional effects. These effects are expected to be minimal since no discharges are likely from these dry processes. Systems 3 and 4 were ranked slightly lower than the first two systems and third highest. A significant increase in the quantity of wet wastes (IC&I organics) will be processed and composted in Systems 5 and 6. Both systems require the siting of new MRFs and compost facilities. Potential effects are also expected due to discharges from the new compost facilities. Systems 5 and 6 were ranked equally as the lowest of the six IC&I systems.

Potential for Effects to the Atmospheric Environment

All six IC&I system alternatives were expected to have emissions to the atmospheric environment. These emissions include dust, odours, bioaerosols, and gases generated at MRFs, processing centres and compost facilities, with dust and exhaust emissions

generated by waste collection vehicles. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. Effects to the atmospheric environment from emissions was expected to increase with the level of collection vehicle requirements and amount of IC&I organics processed and composted at centralized facilities in large volumes. Systems 1 and 2 maintain the present level of waste collection service and IC&I organics processing, resulting in no increase in emissions. These two IC&I systems were equally ranked highest. Systems 3 and 4 require that increased quantities of dry recyclables be collected. As a result these systems have increased collection vehicle requirements and additional emissions to the atmosphere. These systems were both ranked third highest. The last two systems, Systems 5 and 6, are expected to have the greatest potential for effects to the atmospheric environment. Both systems include an increased level of IC&I organics collection and processing. These systems have the greatest requirements for collection vehicles. They also have the largest amount of IC&I organics processing and composting. Systems 5 and 6 were ranked lowest.

4.4.7.2 Overall System Ranking

Combining the ranking of systems by criterion with the criteria rankings allows an overall system ranking to be completed for the Natural Environment Criteria Group. The Existing and Existing/Committed systems (Systems 1 and 2, respectively) were both ranked highest for each of the three criteria. These two systems do not require any new 3Rs facilities, increased vehicle collection requirements or increase in IC&I organics processing. Systems 1 and 2 will result in the lowest potential for effects to the natural environment. Systems 3 and 4 both require the expansion of existing MRFs or the siting of new MRFs. The siting of these new facilities may result in potential effects to both terrestrial systems and aquatic systems. Increased collection vehicle requirements are also required, resulting in additional emissions to the atmosphere. Systems 3 and 4 were ranked third highest for all these criteria. Overall, Systems 3 and 4 were ranked third highest.

IC&I System 5 and System 6 were both ranked lowest. These two systems require increased processing capacity for dry recyclables and IC&I organics. This includes the siting of new MRFs and compost facilities. These systems are expected to have the greatest effects on terrestrial and aquatic systems due to siting new facilities and discharges from the new compost facilities. In addition, these systems have the largest collection vehicle requirements and largest amount of IC&I organics processing. Systems 5 and 6 are expected to have the greatest level of emissions to the atmosphere for all of the systems.

5. SUMMARY OF FINDINGS

The results of the assessment and evaluation of the residential 3Rs systems, with respect to the natural environment, are summarized in Table 5.1 for the four Regions.

TABLE 5.1
SUMMARY OF RESIDENTIAL 3RS SYSTEM RANKINGS BY REGION
NATURAL ENVIRONMENT

Region	System 1 Existing	System 2 Existing/ Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Durham	Highest ranked	Highest ranked	Third lowest ranked	Third highest ranked	Second lowest ranked	Lowest ranked
Metro Toronto	Highest ranked	Second highest ranked	Second lowest ranked	Second highest ranked	Third lowest ranked	Lowest ranked
York	Highest ranked	Second highest ranked	Second Least Preferred	Second highest ranked	Third lowest ranked	Lowest ranked
Peel	Highest ranked	Second highest ranked	Third lowest ranked	Second highest ranked	Second lowest ranked	Lowest ranked

The Existing system ranks as the highest system for all four Regions. This system does not require the development and operation of any new 3Rs facilities. As a result, the Existing system would result in no additional effects to the natural environment. Those components already in place were considered to have only a minimal effect on the natural environment since they are assumed to be operating within the applicable standards.

The second highest ranked system for three of the Regions was both the Existing/Committed and the Expanded Blue Box systems. The exception was the Region of Durham. The Existing/Committed System for Durham did not include any components that would result in additional effects when compared to the Existing system. These two systems were considered equal and highest ranked. However, the Expanded Blue Box System for Durham, like the three other Regions, requires new 3Rs facilities. These facilities may result in effects to the natural environment, making the Expanded Blue Box system lower ranked. York, Metro and Peel Regions required the same new 3Rs components for their Existing/Committed and Expanded Blue Box systems which may result in effects on the natural environment. Consequently, the two systems were ranked equally. The ranking of these systems is comparable to the Durham Expanded Blue Box system ranking.

The fourth and fifth ranked systems for the four Regions was either Direct Cost or Wet/Dry. The Direct Cost system was ranked higher than Wet/Dry for the Regions of Durham and Peel. The Wet/Dry system was the higher ranked of the two systems for York and Metro Toronto. For Durham and Peel, the Direct Cost system required fewer new facilities than the Wet/Dry system. The effects on the natural environment were expected to be greater from these new facilities than the anticipated illegal dumping as a result of the Direct Cost system. In York and Metro Toronto, both systems required the same new 3Rs facilities. For these Regions, the effects from illegal dumping of wastes, expected under the Direct Cost system, were expected to be more significant.

For all four Regions, Mixed Waste Processing was the lowest ranked system. This system typically required the greatest number of new 3Rs facilities resulting in a higher potential for effects to terrestrial systems and aquatic systems. Also, due to the nature of mixed wastes and the processing of these wastes, potential effects to the atmospheric environment were expected to be greater than for any of the other systems.

The results of the assessment and evaluation of the IC&I systems, with respect to the natural environment, are summarized below in Table 5.2.

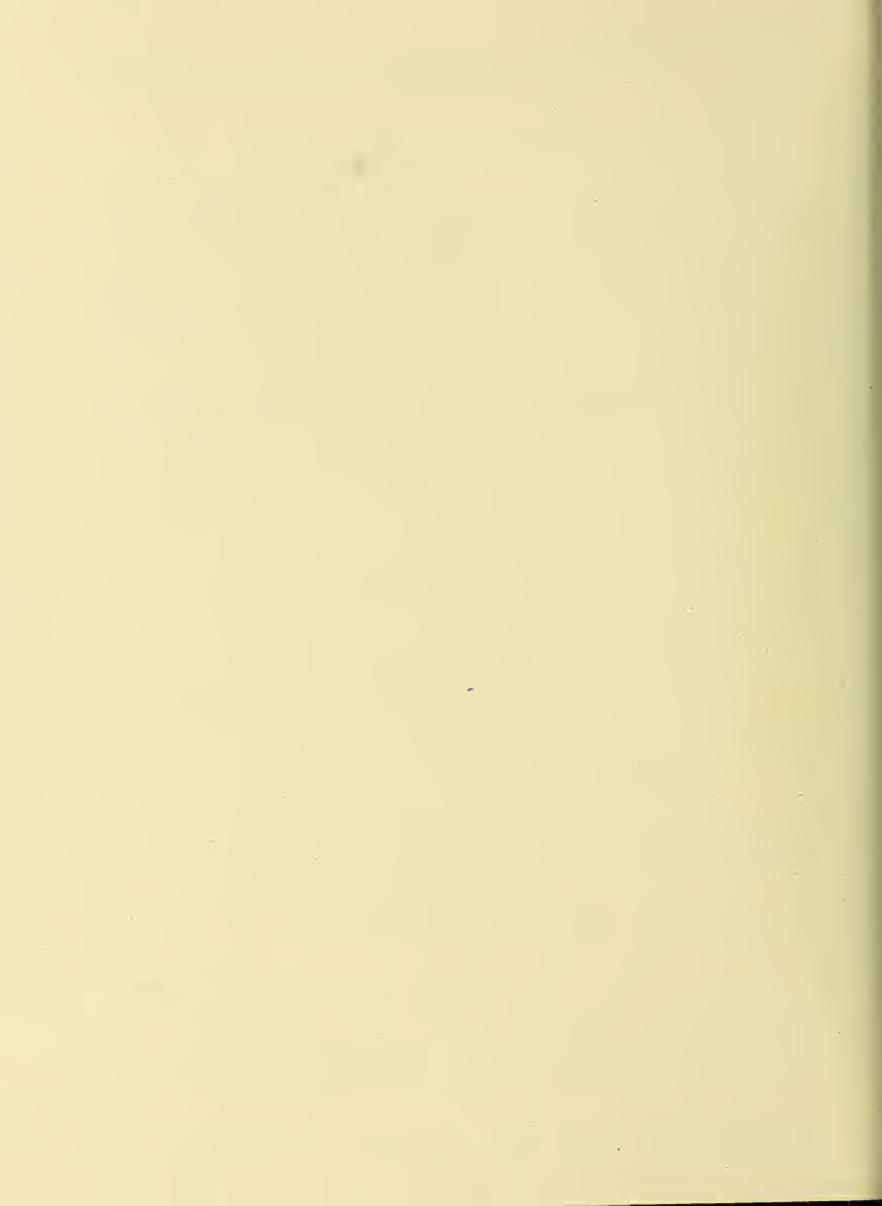
TABLE 5.2
IC&I 3RS SYSTEM RANKINGS
NATURAL ENVIRONMENT

System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 Processing of All IC&I Waste
Highest ranked	Highest ranked	Third highest ranked	Third highest ranked	Lowest ranked	Lowest ranked

BIBLIOGRAPHY

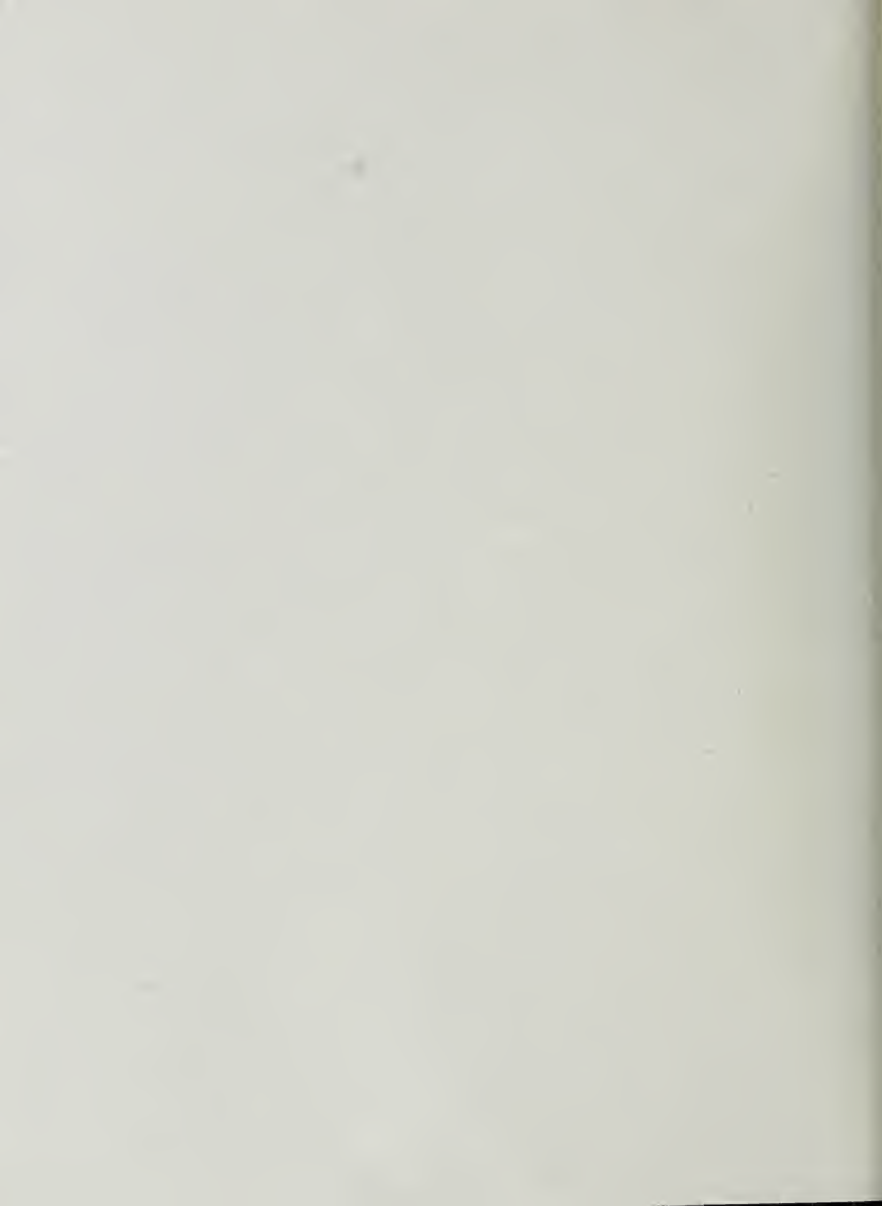
- Cal Recovery Systems Inc., 1989, Composting Technologies, Costs, Programs and Markets, prepared for Office of Technology Assessment, Washington, D.C. PB91-119511.
- Composting Council, undated, "Aspergillus Fumigatus and Composting", A Fact Sheet prepared by the Composting Council, Alexandria, Virginia.
- Dillon Limited, M.M., and Gartner Lee Limited, 1987, Landfill and Study Area Characterization, Discussion Paper No. 2.1, Metropolitan Toronto Department of Works.
- Dixon Hydrogeology, 1992, The Municipality of Metropolitan Toronto Keele Valley Landfill Site - Avondale Leaf Composting Area Water Monitoring Report, Metropolitan Toronto.
- E&A Environmental Consultants Inc., 1993, Letter Report on Air Emissions from Solid Waste Composting Facilities, Prepared for M.M. Dillon Limited. #6360.
- Horst, W.G., Mattern, F., Vold, S.H., and Walker, J.M. "Controlling Compost Odour", BioCycle, p.46-51, November 1991.
- Kereakoglow, G. and Baxter, C., 1992, "Siting the (Benign) MRF", BioCycle, p.61, April 1992.
- Kissel, J.C., Henry, C.L., and Harrison, R.B., 1993, "Potential Emissions of Synthetic VOCs from MSW Composting", BioCycle, p. 76-78, February 1993.
- Logsdon, G., 1991, "Producing and Marketing Manure Compost", BioCycle, p.44-47, February 1991.
- MacLaren Plansearch, 1990. Regional Municipality of Peel Waste Management Master Plan Long Term Landfill Site Selection Study Preliminary Stage 1 Report, Regional Municipality of Peel.
- MacViro Consultants Inc., 1991, Report on A Strategy for the Management of Household Hazardous Wastes in the Greater Toronto Area, prepared for Ontario Ministry of the Environment.
- Magnuson, A., 1993, "Odour Control: Trouble in the Air", World Wastes, p.40-43, March 1993.
- Miller, Jr., W.C., 1992, The Need to Apply Standards and Engineering Solutions to Worker Health, Safety, Industrial Hygiene and Ergonomics at Materials Recovery and Mixed Waste Processing Facilities, Presented at The Solid Waste Association of North America 30th Annual International Solid Waste Exposition, Tampa, Florida.
- Minnesota Pollution Control Agency, 1992, Safety in Recycling Facilities - A Resource for Operators, Minnesota.
- Monk, R., 1993, The Composting Council. Personal Communication with R. Monk, The Composting Council, Arlington, Virginia, April 19, 1993.
- Schall, J., 1992, Does the Solid Waste Hierarchy Make Sense? A Technical, Economic and Environmental Justification for the Priority of Source Reduction and Recycling, Yale University, School of Forestry and Environmental Studies. Working Paper #1.

- Spencer, R., 1992, "Source Separated Composting", Biocycle, p.30-34, February 1992.
- Solid Waste Compost Council, 1992, "How to Plan a Municipal Compost Facility", Public Works, p.44-47, February 1992.
- Taylor, P., 1993, Compost Management. Personal Communication with P. Taylor, Compost Management, Elora, Ontario, March 29, 1993.
- Taylor, P., 1993, "The First Year with Wet/Dry Composting: A Report from the Field", Resource Recycling, p.34-43. January 1993.
- VHB-Hickling, 1993, "Reducing Non-Energy Greenhouse Gases (Draft)". Prepared for Ontario Ministry of Environment and Energy (Unpublished Report).
- VHB Research and Consulting Inc., 1991, "Waste Management Alternatives Generic Assessment (Volume 1)". (Unpublished Report). Prepared for the Ontario Ministry of the Environment.



SCHEDULE A

List of 3Rs Component Contacts and Interview Questions



LIST OF 3Rs COMPONENT CONTACTS

Location and Operator/Contact	Date of Interview	Facility Type
Compost Facilities		
Pittsburgh Township, Ontario Mr. John Rhodes	April 6, 1993	Leaf and yard waste and some IC&I organics
City of Samia, Ontario Mr. Ken McKenzie	April 15, 1993	Leaf and yard waste
City of Scarborough, Ontario Ms. Debra Dale & Mr. John Minor	April 8, 1993	Leaf and yard waste
City of Mississauga, Ontario Mr. Jim Cuthill	April 12, 1993	Wet/Dry Pilot
Region of Halton, Ontario Mr. John Smith	April 16, 1993	Wet/Dry Pilot
Scott's Composting Farm, Milton, Ontario Mr. Jim Scott	April 6, 1993	IC&I Organics
Metro Toronto, Ontario Avondale Facility, Mr. Caesar Corvinelli Dufferin Facility, Mr. Bob Sawyer	April 14, 1993 April 14, 1993	Leaf and Yard Waste In-Vessel
LH Resource Management, Hensall, Ontario Mr. Mark Jacobs	April 16, 1993	IC&I Organics (In-vessel)
Processing Facilities		
Reidel Corporation, Portland, Oregon Mr. Jeep Reid, City of Portland	April 15, 1993	Mixed Waste/Compost
Region of Durham, Ontario Mr. Peter Watson	April 6, 1993	Residential Recyclables (Blue Box)
Wright County, Minnesota Mr. Chuck Davis	April 6, 1993	Mixed Waste/Compost
Waste Management Inc., Etobicoke, Ontario Mr. Steve Osbourne	April 8, 1993	IC&I Wastes
Metro Toronto, Ontario Commissioners Street Mr. Bob Sawyer	April 13, 1993	Residential Recyclables (Blue Box)
Household Hazardous Waste		
Region of Ottawa-Carleton, Ontario Mr. Phil Lefebvre	April 6, 1993	Permanent Depot

3Rs COMPONENT CONTACTS - INTERVIEW QUESTIONS

Facility Name:

Location:

Contact:

Telephone Number:

Date:

1. Facility Ownership? ☐ Public ☐ Private

2. Were any studies undertaken to site your facility and to predict possible biophysical and social environment effects associated with the facility?

Probe Points - Were there any detailed impact assessment studies undertaken related to ground and surface water, air quality, traffic volumes/routes, proximity to residences/businesses?

(If No, go to Question 4.)

3. What potential biophysical and social environment effects were predicted and how were they to be mitigated? Does the facility include any design features intended to reduce potential effects? Have you ever had to rely on these features?

4. Have there been any impacts on people, businesses, land, air, ground water from the operation of the facility?
 - Spills
 - Emission/Air Quality
 - Odours
 - Noise

- Dust
- Traffic
- Rodents/Birds
- Other (Specify) _____.

5. Have there been any complaints about the operation of the facility?

- Noise
- Odour
- Rodents/Birds
- Spills
- Traffic
- Dust
- Trespassing (Probe for children.)
- Land Value Concerns
- Other (Specify) _____.

6. How have these identified effects and complaints been resolved?

- Installation of new design features.
- Monitoring.
- Operational change.
- Other (Specify) _____.

7. Do you think that changes in the composition of material managed at your facility would result in any other effects on the biophysical or social environments? If so what types of effects?

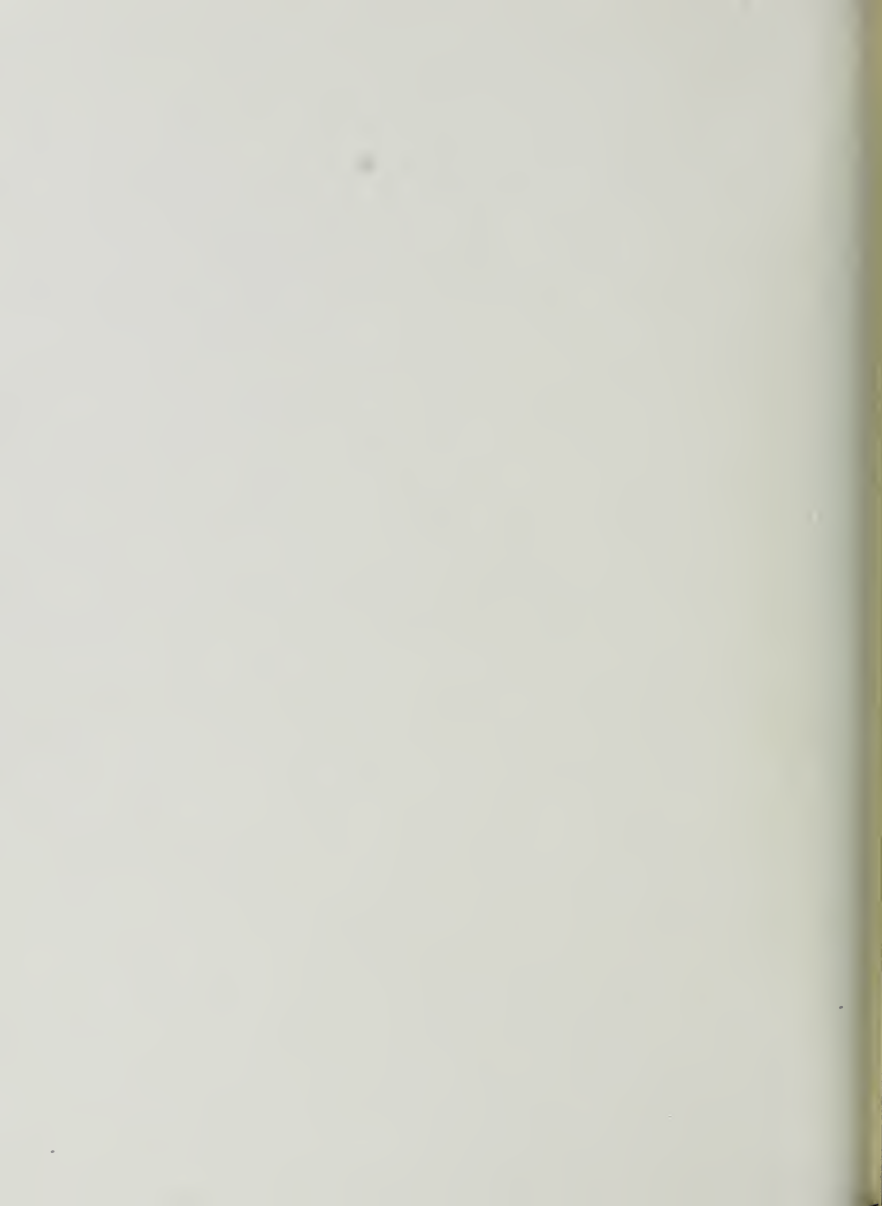
8. Is the quality of material coming to the site consistent month-to-month or does it vary?

9. How many people are employed in the operation of the facility?

	Number	Union	Municipal Jobs	Part-Time or Seasonal
Facility Staff				
Trucking Staff				

SCHEDULE B

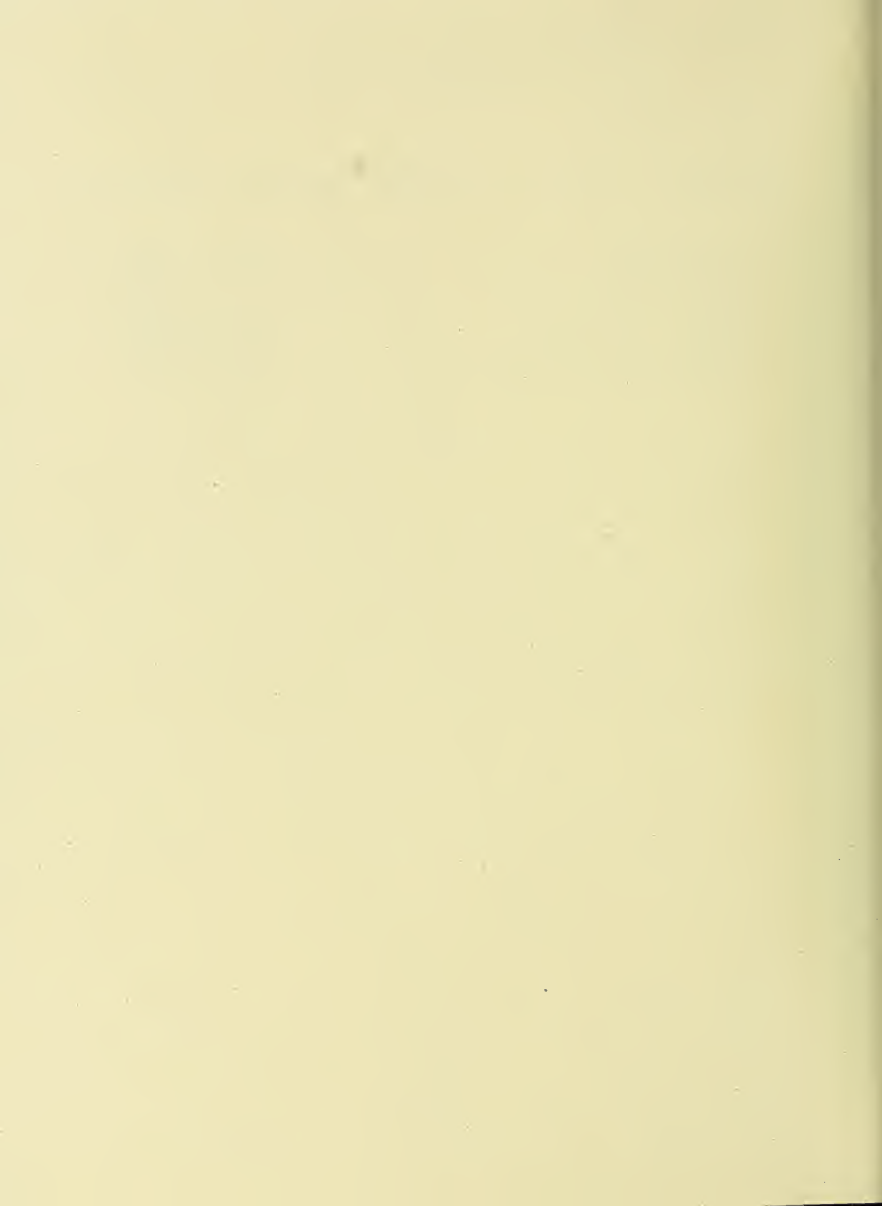
Residential Generic System Net Effects Tables By Component



1. INTRODUCTION

The residential generic system net effects tables by component are presented in the following order:

Existing System	-	Tables B1.1 to B1.5
Existing/Committed System	-	Tables B2.1 to B2.5
Direct Cost System	-	Tables B3.1 to B3.5
Expanded Blue Box System	-	Tables B4.1 to B4.5
Wet/Dry System	-	Tables B5.1 to B5.5
Solid Mixed Waste Processing System	-	Tables B6.1 to B6.5



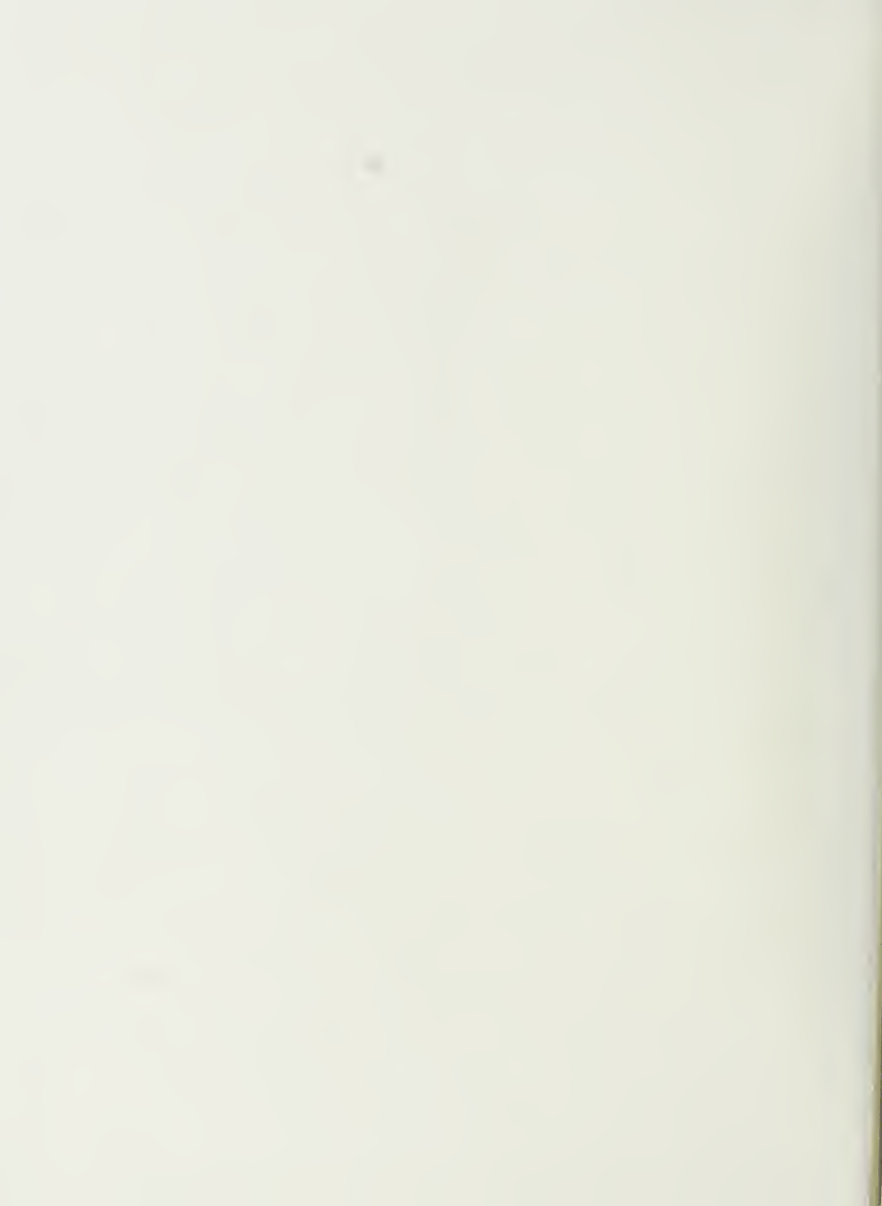


TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u>	<ul style="list-style-type: none"> Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment 	<ul style="list-style-type: none"> Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> No effects identified. 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> No effects identified.

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • No effects identified.
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • No effects identified.
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection & Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u>	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • In-vessel composting of source separated organics 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

**TABLE B13
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics Centralized windrow composting of source separated residential organics Centralized windrow composting of source separated IC&I organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

**TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Existing

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources Hold special HHW collections at locations away from surface and ground water resources; areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u>	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Atmospheric Environment
 INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Residential Household Composting <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere. 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere Provide staff working with HHW with appropriate safety equipment and training Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified



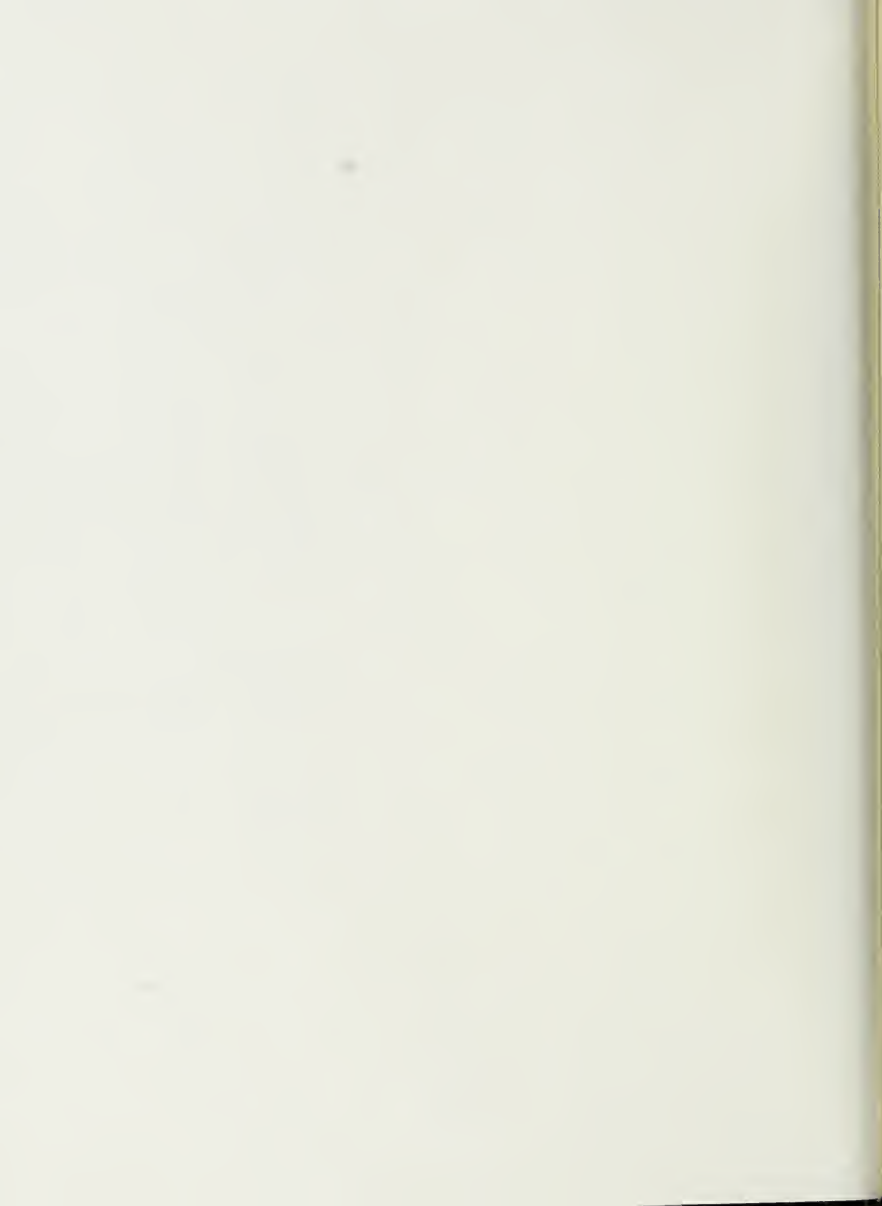


TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables • Improvements to existing MRFs 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> • Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • In-vessel composting of source separated organics 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables • Improvements to existing MRFs 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling of all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u>			
<ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u>			
<ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u>			
<ul style="list-style-type: none"> 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling of all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

**TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Existing/Committed

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Atmospheric Environment

INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
Residential Recycling and Collection <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling of all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere Provide staff working with HHW with appropriate safety equipment and training Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>Composting Facilities</u></p> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<p><u>Reuse Centres and Activities</u></p> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B25
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(c.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified



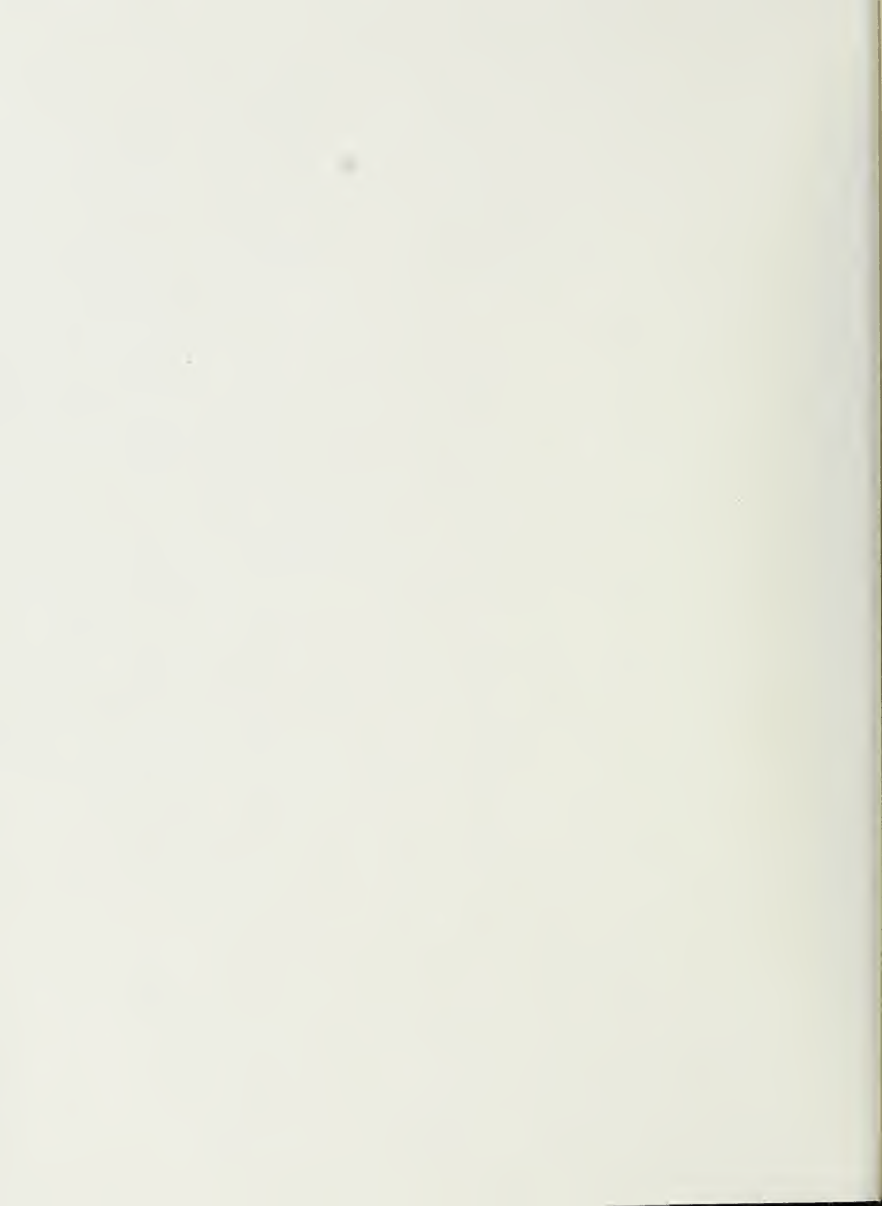


TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Direct Cost system for garbage collection • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Promotion of vermi-composting to multi-family units Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial resources expected due to siting depots

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education program on Direct Cost system • Promotion/education program on source reduction/pre-cycling, reuse and recycling • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Direct Cost system for garbage collection • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • Illegal dumping of wastes may occur due to Direct Cost system and potentially disrupt terrestrial systems and resources 	<ul style="list-style-type: none"> • Provide opportunity for residents to reduce their waste load (e.g. recycling programs, backyard composters, etc.) before being penalized for producing too much refuse • Public education and promotion of the cost saving implications of the program • Enforcement of littering and illegal dumping by-laws 	<ul style="list-style-type: none"> • Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes will be minimized but not eliminated
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident
<p><u>Composting Facilities</u></p> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • In-vessel composting of source separated organics 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>Reuse Centres and Activities</u></p> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u>			
<ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u>			
<ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u>			
<ul style="list-style-type: none"> Promotion/education program on Direct Cost system Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> Promotion/education of Direct Cost system and 3Rs programs reduces potential for illegal dumping of wastes and disruptive effects on terrestrial systems and resources 	<ul style="list-style-type: none"> Develop programs which most effectively reach the residents of the municipality 	<ul style="list-style-type: none"> Promotion/education of Direct Cost and 3Rs programs reduces potential for disruption of terrestrial systems and resources due to illegal dumping of wastes. Disruptive effects are not eliminated

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost

CRITERIA GROUP: Natural

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

CRITERIA: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

INDICATOR:

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Direct Cost system for garbage collection • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on Direct Cost system Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Direct Cost system for garbage collection Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units Self-haul of garbage Regional recycling legislation 	<ul style="list-style-type: none"> Illegal dumping of wastes may occur due to Direct Cost system and potentially disrupt aquatic systems including surface and ground water resources 	<ul style="list-style-type: none"> Provide opportunity for residents to reduce their waste load (e.g. recycling programs, backyard composters, etc.) before being penalized for producing too much refuse Public education and promotion of the cost saving implications of the program Enforcement of littering and illegal dumping by-laws 	<ul style="list-style-type: none"> Potential for disruption effects to aquatic systems including surface and ground water resources due to illegal dumping of wastes will be minimized but not eliminated
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> Curbside collection of Blue Box materials Expanding curbside collection Collection of bins of recyclables from multi-family units Drop-off depot for multi-family residents not serviced by recycling Drop-off depot for rural households Community reducing centres Recycling at all multi-family buildings of greater than 6 units Blue Box recycling mandated Engineered recycling depot 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified.

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources; areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by build-up of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on Direct Cost system Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> Promotion/education on Direct Cost system and 3Rs programs reduces potential for illegal dumping of wastes and disruptive effects on aquatic systems including surface and ground water resources 	<ul style="list-style-type: none"> Develop programs which most effectively reach the residents of the municipalities 	<ul style="list-style-type: none"> Promotion/education of Direct Cost and 3Rs programs reduces potential for disruption of aquatic systems including surface and ground water resources due to illegal dumping of wastes. Disruptive effects are not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Atmospheric Environment
 INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Direct Cost system for garbage collection • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling of all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> • Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> • Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles along streets • Regular sweeping of municipal streets to collect materials which may generate dust • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<ul style="list-style-type: none"> • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects and to the atmosphere 	<ul style="list-style-type: none"> • Cover trucks collecting mulched trees to prevent release of dust and particulate • Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on Direct Cost system Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified





**TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Expanded Blue Box
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Expanded Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources • Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> • No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident • Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Construct new MRF or expand existing MRF 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial resources expected due to siting depots

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Expanded Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B42
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u>			
<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Reuse Centres and Activities</u>			
<ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u>			
<ul style="list-style-type: none"> Processing centre for dry recyclables Construct new MRF or expand existing MRF 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u>			
<ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u>			
<ul style="list-style-type: none"> Promotion/education program on Expanded Blue Box program Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Expanded Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Door-to-door distribution of backyard composters to 80% of single family households • Promotion of vermi-composting to multi-family units • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Construct new MRF or expand existing MRF 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on Expanded Blue Box program Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Expanded Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Door-to-door distribution of backyard composters to 80% of single family households Promotion of vermi-composting to multi-family units Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Construct new MRF or expand existing MRF 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on Expanded Blue Box program Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Expanded Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community reducing centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Door-to-door distribution of backyard composters to 80% of single family households Promotion of vermi-composting to multi-family units Large 3-bin composting units distributed to apartment and cooperative housing complexes Community composting 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>Composting Facilities</u></p> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Provide staff working with HHW with appropriate safety equipment and training Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
		<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables • Construct new MRF or expand existing MRF 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 	<ul style="list-style-type: none"> • Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> • Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> • Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

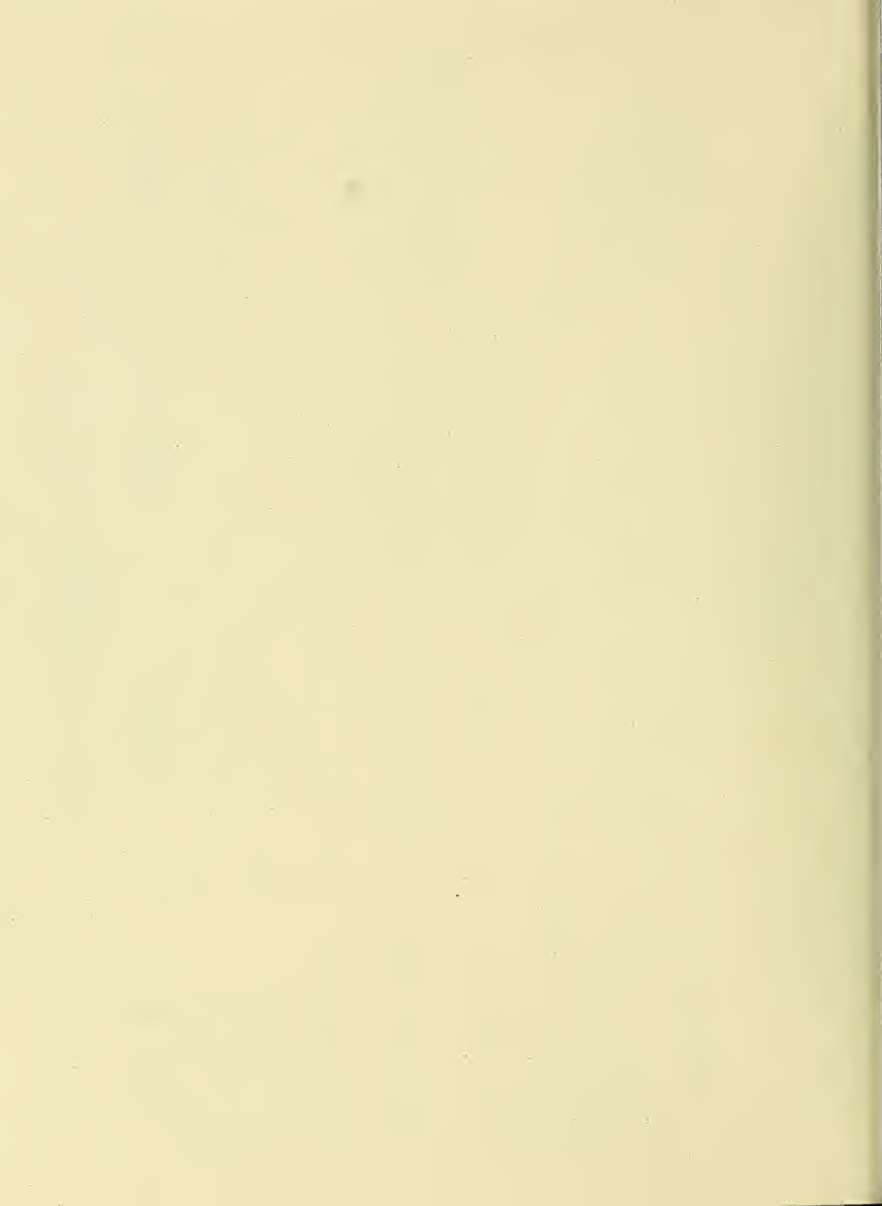




TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams • Collection of residential garbage from multi-family units in three streams • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households • Separation of waste into three streams • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal separate collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> New MRF or expand existing MRFs to process larger dry stream of recyclables 	<ul style="list-style-type: none"> MRFs require site area, which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial resources expected due to siting depots

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program for Wet/Dry system Promotion/education program for source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams • Collection of residential garbage from multi-family units in three streams • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households • Separation of waste into three streams • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal separate collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Vermicomposting for multi-family households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u>	<ul style="list-style-type: none"> • Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 			
<u>Public MRFs</u>	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<ul style="list-style-type: none"> • New MRF or expand existing MRFs to process larger dry stream of recyclables 			
<u>Residential Recycling Depots and Transfer Stations</u>	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations 			

TABLE B52
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling • 3Rs promotion and education program • Consumer education program 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams • Collection of residential garbage from multi-family units in three streams • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households • Separation of waste into three streams • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal separate collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Residential Household Composting</p> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u>			
<ul style="list-style-type: none"> New MRF or expand existing MRFs to process larger dry stream of recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u>			
<ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u>			
<ul style="list-style-type: none"> Promotion/education program for Wet/Dry system Promotion/education program for source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams • Collection of residential garbage from multi-family units in three streams • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households • Separation of waste into three streams • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal separate collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Vermicomposting for multi-family households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> New MRF or expand existing MRFs to process larger dry stream of recyclables 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program for Wet/Dry system Promotion/education program for source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

**TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Wet/Dry

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Atmospheric Environment

INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams • Collection of residential garbage from multi-family units in three streams • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households • Separation of waste into three streams • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal separate collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Residential Household Composting <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere Provide staff working with HHW with appropriate safety equipment and training Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Potential for effects may be greater for composting of wet stream due to nature of the feedstock 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) Provide equipment to individual staff to restrict or prevent exposure to dust, bioaerosols and VOCs (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost. Effects may result due to nature of wet waste feedstock
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> New MRF or expand existing MRFs to process larger dry stream of recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program for Wet/Dry system Promotion/education program for source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Solid Waste Processing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Residential Household Composting <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics New mixed waste processing and composting facility 	<ul style="list-style-type: none"> Mixed waste processing and compost facilities may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate processing and compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial resources expected due to siting depots

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Solid Waste Processing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics New mixed waste processing and composting facility 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Solid Waste Processing
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Vermit-composting for multi-family households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground-water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • In-vessel composting of source separated organics • New mixed waste processing and composting facility 	<ul style="list-style-type: none"> • Mixed waste processing and compost facilities may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate processing and compost facilities in an area away from surface water bodies and drainage courses • Locate processing and compost facilities in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at processing and compost facilities to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at processing and compost facilities to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting processing and compost facilities • Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u>			
<ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling Depots and Transfer Stations</u>			
<ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u>			
<ul style="list-style-type: none"> Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Solid Waste Processing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings • Collection of residential garbage from multi-family units • Self haul of garbage • Regional recycling legislation 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials • Expanding curbside collection • Collection of bins of recyclables from multi-family units • Drop-off depot for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community recycling centres • Recycling at all multi-family buildings of greater than 6 units • Blue Box recycling mandated • Engineered recycling depot 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Vermicomposting for multi-family households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days • Toxic Taxi service • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics New mixed waste processing and composting facility 	<ul style="list-style-type: none"> Mixed waste processing and compost facilities may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from mixed waste processing and compost facilities may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate processing and compost facilities in an area away from surface water bodies and drainage courses Locate processing and compost facilities in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at processing and compost facilities to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at processing and compost facilities to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre Non-profit reuse centre Charitable reuse centres Food reuse organization Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Public MRFs</u> <ul style="list-style-type: none"> Processing centre for dry recyclables Improvements to existing MRFs 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depot for dry recyclables Depots located at transfer stations 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

**TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT**

SYSTEM: Residential Existing/Committed			
CRITERIA GROUP: Natural			
CRITERIA: Potential for Effects to Atmospheric Environment			
INDICATOR: Potential for Atmospheric Emissions			
Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none">• Curbside collection of residential garbage from single family dwellings• Collection of residential garbage from multi-family units• Self haul of garbage• Regional recycling legislation	<ul style="list-style-type: none">• Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere	<ul style="list-style-type: none">• Decrease speed of collection vehicles• Regular sweeping of municipal streets to collect dust generating materials• Regular vehicle maintenance	<ul style="list-style-type: none">• Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none">• Curbside collection of Blue Box materials• Expanding curbside collection• Collection of bins of recyclables from multi-family units• Drop-off depot for multi-family residents not serviced by recycling• Drop-off depot for rural households• Community recycling centres• Recycling at all multi-family buildings of greater than 6 units• Blue Box recycling mandated• Engineered recycling depot	<ul style="list-style-type: none">• Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere	<ul style="list-style-type: none">• Decrease speed of collection vehicles• Regular sweeping of municipal streets to collect dust generating materials• Regular vehicle maintenance	<ul style="list-style-type: none">• Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none">• Curbside collection of leaf and yard waste• Drop-off depot for leaf and yard waste	<ul style="list-style-type: none">• Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere	<ul style="list-style-type: none">• Decrease speed of collection vehicles• Regular sweeping of municipal streets to collect dust generating materials• Regular vehicle maintenance	<ul style="list-style-type: none">• Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Vermi-composting for multi-family households 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days Toxic Taxi service Mobile HHW depots 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects health is reduced with use of safety equipment and training, but not eliminated

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste In-vessel composting of source separated organics New mixed waste processing and composting facility 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from processing and compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Potential for effects are greater at mixed waste facility due to nature of feedstock and handling of waste required. 	<ul style="list-style-type: none"> Provide staff working with HHW with appropriate safety equipment and training Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from processing and composting. Effects may result due to nature of mixed waste feedstock
	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from processing and compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Potential for effects are greater at mixed waste facility due to nature of feedstock and handling of waste required. 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of processing and compost facilities such as maintaining aerobic conditions and limited storage of putrescible feedstocks before processing and composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, tumbling and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from processing and composting. Effects may result due to nature of mixed waste feedstock

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
		<ul style="list-style-type: none"> • Provide equipment to individual staff to restrict or prevent exposure to dust, bioaerosols and VOCs (e.g. respirator) • Daily cleaning of facility equipment and floors 	
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre • Non-profit reuse centre • Charitable reuse centres • Food reuse organization • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Public MRFs</u> <ul style="list-style-type: none"> • Processing centre for dry recyclables • Improvements to existing MRFs 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depot for dry recyclables • Depots located at transfer stations. 	<ul style="list-style-type: none"> • Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> • Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> • Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education program on source reduction/pre-cycling, reuse and recycling 3Rs promotion and education program Consumer education program 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

SCHEDULE C

Residential System Net Effects Tables

1. INTRODUCTION

The residential 3Rs system net effects tables are presented in the following order:

Durham Region	-	Tables C1.1 to C1.6
Metro Toronto Region	-	Tables C2.1 to C2.6
York Region	-	Tables C3.1 to C3.6
Peel Region	-	Tables C4.1 to C4.6

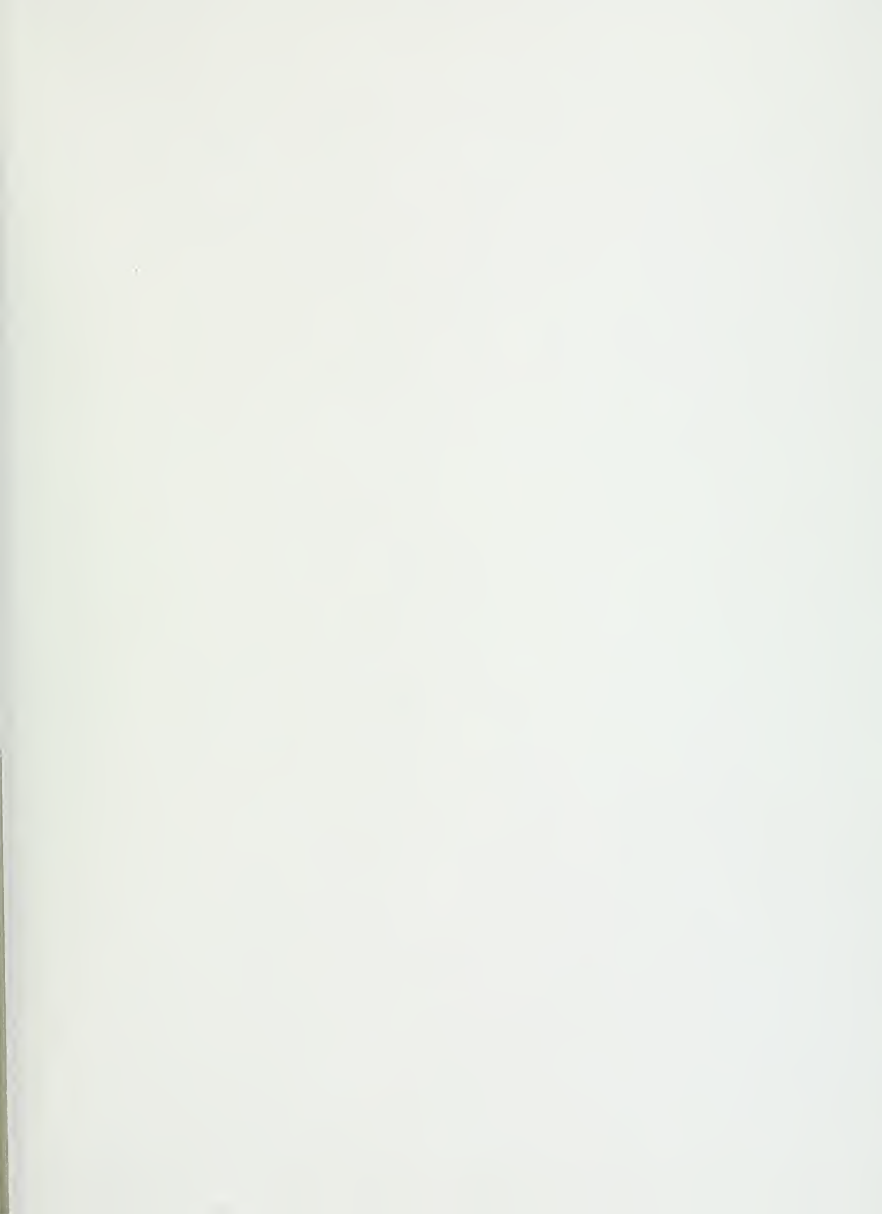


TABLE C1.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal and restricted to a small area, since HHW depots are located at a landfill site or transfer station, including design features at the depots and by implementing contingency measures in the event of an accident 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots but are restricted to a small area due to the location of the depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C1.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots. Effects are restricted to a small area near facility due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C12
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities. The installation of design features and contingency measures minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required which may result in additional potential effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		

TABLE C1.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C1.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of illegal dumping of wastes and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots. Effects are restricted to a small area near facility due to location of HHW depots, design features and contingency measures. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Illegal dumping of wastes is anticipated resulting in disruption effects

TABLE C13
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and illegal dumping of wastes. The installation of design features and contingency measures minimize the potential for effects. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required which may result in additional potential effects
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to illegal dumping of wastes but does not eliminate the potential effects 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities Illegal dumping of wastes is anticipated resulting in disruption effects

TABLE C13
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C1.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Durham
Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Terrestrial Systems and Resources</p> <p>Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots. Effects are minimized by siting process or restricted to a small area near facility due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
<p>Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to facility siting

TABLE C1.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and location of new MRF. The installation of design features and contingency measures, and proper siting of MRF minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New MRF required which may result in additional effects

TABLE C1.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C1.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Durham
Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and compost facilities Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF and compost facilities, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots. Effects are minimized by facility siting process or restricted to a small area near facility due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of facilities

TABLE C1.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and location of new MRF and compost facilities. The installation of design features and contingency measures and proper siting of MRF and compost facilities minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and compost facilities, and installing facility design features at new and existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New MRF and compost facilities required which may result in additional effects

TABLE C1.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities (particularly wet waste compost facility) may result in effects Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities (particularly wet waste compost facility) and MRF. Exposure to these emissions may result in effects. Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from wet waste composting may result in additional effects

TABLE C1.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Durham
Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new mixed waste processing and compost facility Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new mixed waste processing and compost facility, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depots. Effects are minimized by facility siting process or restricted to a small area near facility due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to facility siting

TABLE C1.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to location of new mixed waste processing/compost facility and discharges from HHW depots, central compost facilities and mixed waste processing/compost facility. The installation of design features and contingency measures, and proper siting of new facility minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New mixed waste processing and compost facility required which may result in additional effects
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new mixed waste processing/compost facility, and installing facility design features at existing compost and HHW facilities and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		

TABLE C1.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from mixed waste processing and composting may result in additional effects



TABLE C2.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Metro Toronto
Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal and restricted to a small area, since permanent HHW depots are located at existing landfill sites and transfer stations, including design features at the depots and by implementing contingency measures in the event of an accident (including toxic taxis) 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots but are restricted to a small area due to the location of the depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots or involving toxic taxi may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		

TABLE C2.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities. The installation of design features to prevent discharges and contingency measures (also for toxic taxi) minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required which may result in additional potential effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at HHW depots and compost facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		

TABLE C2.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to the atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C2.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Metro Toronto
Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new central compost facility and one to two new MRFs Location of existing HHW depots, design features at depots, and implementing contingency measures (also for toxic taxis) restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and one to two new MRFs and due to accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots. Effects are minimized by siting process or restricted to a small area due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting one to two MRFs and new compost facility

TABLE C2.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. No effects expected from new in-vessel compost facility 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and location of new central compost facility and one to two new MRFs. The installation of design features and contingency measures (also for toxic taxi), and proper siting of new facilities minimize the potential for effects. New compost facility is in-vessel facility with no effects expected as a result 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New central compost facility is in-vessel facility reducing potential for effects
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and one to two new MRFs, and installing facility design features at new and existing compost facilities and HHW depots to prevent discharges to surface and ground waters. No effects expected from new compost facility since it is an in-vessel facility. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and one to two new MRFs required which may result in additional effects

TABLE C2.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Composting of residential organics at new in-vessel facility not expected to result in increase in emissions Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. Composting of residential organics at new in-vessel facility not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C2.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Metro Toronto
Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new central compost facility and one to two new MRFs Location of existing HHW depots, design features at depots, and implementing contingency measures (also for toxic taxi) restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and one to two new MRFs, illegal dumping of wastes and due to accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots. Effects are minimized by siting process or restricted to a small area due to location of HHW depots, design features and contingency measures. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial system and resources due to siting of one to two MRFs and new central compost facility Illegal dumping of wastes is anticipated resulting in disruption effects
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		

TABLE C2.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. No effects expected from new in-vessel compost facility 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, location of new central compost facility and one to two new MRFs, and illegal dumping of wastes. The installation of design features and contingency measures (also for toxic taxi), and proper siting of new facilities minimize the potential for effects. New compost facility is in-vessel facility with no effects expected as a result. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New central compost facility is in-vessel facility reducing potential for effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and one to two new MRFs, and installing facility design features at new and existing compost facilities and HHW depots to prevent discharges to surface and ground waters. No effects expected from new compost facility since it is in an in-vessel facility. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and one to two new MRFs required which may result in additional effects Illegal dumping of wastes is anticipated resulting in disruption effects

TABLE C2.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Composting of residential organics at new in-vessel facility not expected to result in increase in emissions Accidents involving toxic taxi at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. Composting of residential organics at new in-vessel facility not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C2.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for one to two new MRFs and new central compost facility Location of existing HHW depots, design features at depots, and implementing contingency measures (also for toxic taxi) restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and one to two new MRFs and due to accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots. Effects are minimized by siting process or restricted to a small area due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of one to two MRFs and new compost facility

TABLE C2.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. No effects expected from new in-vessel compost facility 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and location of new central compost facility and one to two new MRFs. The installation of design features and contingency measures (also for toxic taxi), and proper siting of new facilities minimize the potential for effects. New compost facility is in-vessel facility with no effects expected as a result 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New central compost facility is in-vessel facility reducing potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and one to two new MRFs required which may result in additional effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and one to two new MRFs, and installing facility design features at new and existing compost facilities and HHW depots to prevent discharges to surface and ground waters. No effects expected from new compost facility since it is an in-vessel facility. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		

TABLE C2.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Composting of residential organics at new in-vessel facility not expected to result in increase in emissions Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. Composting of residential organics at new in-vessel facility not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C2.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Metro Toronto
Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for one to two new MRFs and new compost facility Location of existing HHW depots, design features at depots, and implementing contingency measures (also for toxic taxi)-restricts potential for loss or removal, in the event of an accident, to a small area Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting one to two new MRFs and new central compost facility, and due to accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots. Effects are minimized by facility siting process or restricted to a small area due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of one to two MRFs and new central compost facility
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources			

TABLE C2.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. No effects expected from new in-vessel compost facility 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depots and central compost facilities, and location of one to two new MRFs and new central compost facility. The installation of design features and contingency measures (also for toxic taxi) and proper siting of MRFs and compost facility minimize the potential for effects. New compost facility is in-vessel facility with no effects expected as a result 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New central compost facility is in-vessel facility reducing potential for effects
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of one to two new MRFs and new central compost facility, and installing existing compost and HHW depots to prevent discharges to surface and ground waters. No effects expected from new compost facility since it is an in-vessel facility. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New compost facility and one to two new MRFs required which may result in additional effects

TABLE C2.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Increased quantity of residential wet wastes composted at in-vessel facility may result in additional emissions (VOCs) Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects. Additional emissions (VOCs) may result due to increased residential wet waste composting at in-vessel facility Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from increased wet waste composting may result in additional effects

TABLE C2.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Metro Toronto
Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new mixed waste processing and compost facility Location of existing HHW depots, design features at depots, and implementing contingency measures (also for toxic taxis) restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new mixed waste processing and compost facility, and due to accidents (e.g. spills, leaks, fires, vehicle upset) involving toxic taxi or at HHW depots. Effects are minimized by facilities siting process or restricted to a small area due to location of HHW depots, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for effects reduced since only a single new facility is required
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxis or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of mixed waste processing and compost facility

TABLE C2.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, compost and mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to location of new mixed waste processing/compost facility and discharges from HHW depots and mixed waste processing/compost facility. The installation of design features and contingency measures (also for toxic taxi), and proper siting of new facility minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for effects reduced since only a single new facility is required <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New mixed waste processing and compost facility required which may result in additional effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new mixed waste processing/compost facility, and installing facility design features at existing compost and HHW facilities and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		

TABLE C2.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and compost facilities and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from mixed waste processing and composting may result in additional effects

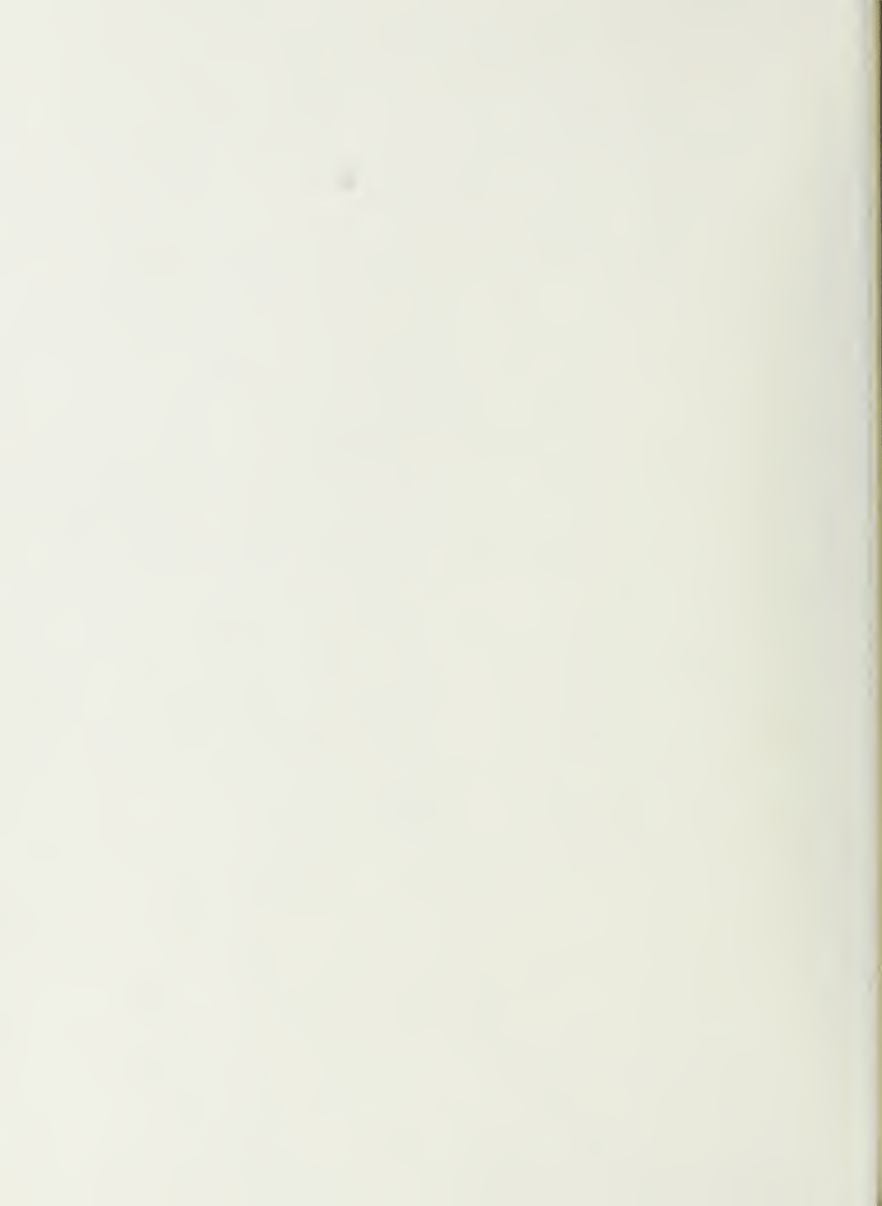


TABLE C3.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal and restricted to a small area. HHW is collected by small mobile depot or special collection day. Effects are minimized by holding HHW collections at appropriate locations and contingency measures can be implemented in the event of an accident 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot but are restricted to a small area due to the location of collection sites and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection depot 		

TABLE C3.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility and by holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW collection days and mobile depot and central compost facility. The installation of design features to prevent discharges, holding HHW collections at appropriate locations and contingency measures minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required which may result in additional potential effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at compost facilities to prevent discharges to surface and ground waters. Holding HHW collections at appropriate locations and contingency measures further minimize potential effects from discharges at HHW collection areas 		

TABLE C3.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW collection events may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRFs. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection events 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to the atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C3.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for two new central compost facilities. New MRF and a central compost facility already approved and being developed Holding HHW collection days or locating mobile depot at appropriate site and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting two new central compost facilities and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot. Effects are minimized by siting process or restricted to a small area due to location of HHW collections and contingency measures. New MRF and central compost facility already being developed 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and in-vessel central compost facility have been approved and are being developed, with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting two new compost facilities
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE C3.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<p>• Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. No effects from new in-vessel compost facility expected</p>	<p>• Potential for effects to aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facilities, and location of new central compost facilities. The installation of design features and contingency measures, and proper siting of new facilities and HHW collections minimize the potential for effects. No effects expected from new MRF and in-vessel compost facility presently being developed</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • New MRF and new in-vessel compost facility are being developed with no effects expected
	<p>• Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facilities and installing facility design features at new and existing compost facilities to prevent discharges to surface and ground waters. New MRF and in-vessel compost facility not expected to result in effects. Appropriate locations for HHW collections and contingency measures minimize potential effects from HHW collection areas</p>		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Potential for effects due to discharges from existing facilities • New central compost facilities may result in additional effects

TABLE C3.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Residential organics to be composted at new in-vessel facility with no anticipated increase in emissions Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. New in-vessel compost facility for residential organics not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C33
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for two new central compost facilities. New MRF and central compost facility already approved and being developed Locating HHW collection days or mobile depot at appropriate site and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting two new central compost facilities, illegal dumping of wastes and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot. Effects are minimized by siting process or restricted to a small area due to location of HHW collections and contingency measures. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping. New MRF and central compost facility already being developed 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and in-vessel central compost facility have been approved and are being developed, with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial system and resources due to siting of two new compost facilities Illegal dumping of wastes is anticipated resulting in disruption effects
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE C3.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facilities, location of new central compost facilities and illegal dumping of wastes. The installation of design features and contingency measures, and proper siting of new facilities and HHW collections minimize the potential for effects. No effects expected from new MRF and in-vessel compost facility presently being developed. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel compost facility are being developed, with no effects expected
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facilities and installing facility design features at new and existing compost facilities to prevent discharges to surface and ground waters. New MRF and in-vessel compost facility not expected to result in effects. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facilities may result in additional effects Illegal dumping of wastes is anticipated resulting in disruption effects

TABLE C3.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles traveling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Residential organics to be composted at new in-vessel facility with no anticipated increase in emissions Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. New in-vessel compost facility for residential organics not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C3.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Terrestrial Systems and Resources</p> <p>Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for two new central compost facilities. New MRF and central compost facility already approved and being developed. Expansion of new MRF capacity not expected to result in effects Locating HHW collection days or mobile depot at appropriate sites and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting two new central compost facilities and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot. Effects are minimized by siting process or restricted to a small area due to location of HHW collections and contingency measures. New MRF and central compost facility already being developed. Expansion of new MRF not expected to result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and in-vessel central compost facility have been approved and are being developed with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of two new compost facilities
<p>Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE C3.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. No effects from new in-vessel compost facility expected 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facilities, and location of new central compost facilities. The installation of design features and contingency measures, and proper siting of new facilities and HHW collections minimize the potential for effects. No effects expected from new MRF (and new MRF expansion) and in-vessel compost facility presently being developed 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel compost facility are being developed, with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facilities may result in additional effects
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facilities and installing facility design features at new and existing compost facilities to prevent discharges to surface and ground waters. New MRF (and its expansion) and in-vessel compost facility not expected to result in effects. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 		

TABLE C3.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. New in-vessel compost facility for residential organics not expected to result in additional effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Composting of wet wastes is done at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases
	<ul style="list-style-type: none"> Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Residential organics to be composted at new in-vessel facility with no anticipated increase in emissions Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 		

TABLE C3.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Terrestrial Systems and Resources</p> <p>Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF if existing MRF is not expanded. A new MRF and new in-vessel compost facility are already approved and being developed Holding HHW collection days or locating mobile depots at appropriate site and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF, if required, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot. Effects are minimized by facility siting process or restricted to a small area due to location of HHW collections and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel central compost facility have been approved and are being developed, with no effects expected. Expansion of MRF may be appropriate for this system, with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of two new compost facilities and possibly new MRF
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE C3.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. No effects from in-vessel compost facility expected 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facilities, and location of new MRF, if required. The installation of design features and contingency measures and proper siting of MRF and HHW collections minimize the potential for effects. No effects expected from in-vessel compost facility 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel compost facility are being developed, with no effects expected
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, if required, and installing facility design features at existing compost facilities to prevent discharges to surface and ground waters. In-vessel compost facility not expected to result in effects. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New MRF (if required) and compost facilities required which may result in additional effects

TABLE C3.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Increased quantity of residential wet wastes composted at in-vessel facility may result in additional emissions (VOCs) Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. Additional emissions (VOCs) may result due to increased residential wet waste composting at in-vessel facility Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from increased wet waste composting may result in additional effects

TABLE C3.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for two new central compost facilities and new mixed waste processing and compost facility. New MRF and in-vessel compost facility already approved and being developed Holding HHW collection days or locating mobile depot at appropriate site and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting two new central compost facilities and new mixed waste processing and compost facility, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW collection day or mobile depot. Effects are minimized by facilities siting process or restricted to a small area due to location of HHW collections and contingency measures. New MRF and in-vessel compost facility already approved and being developed 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel central compost facility have been approved and are being developed, with no effects expected <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of two new central compost facilities and mixed waste processing/compost facility
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE C.3.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost and mixed waste processing and compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. No effects from new in-vessel compost facility expected 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to location of two new central compost facilities, and new mixed waste processing/compost facility and discharges from HHW collection days or mobile depot, central compost facilities and mixed waste processing/compost facility. The installation of design features and contingency measures, and proper siting of new facilities and HHW collections minimize the potential for effects. No effects expected from new MRF and in-vessel compost facility presently being developed 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> New MRF and new in-vessel central compost facility are being developed, with no effects expected
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of two new central compost facilities, and new mixed waste processing/compost facility, and installing facility design features at existing and new compost facilities and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. New MRF and in-vessel compost facility not expected to result in effects. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facilities, and mixed waste processing and compost facility required which may result in additional effects

TABLE C3.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Residential organics to be composted at new in-vessel facility with no anticipated increase in emissions. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects. 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost facility, central compost facilities and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Some wet wastes are composted at in-vessel facility <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from mixed waste processing and composting may result in additional effects



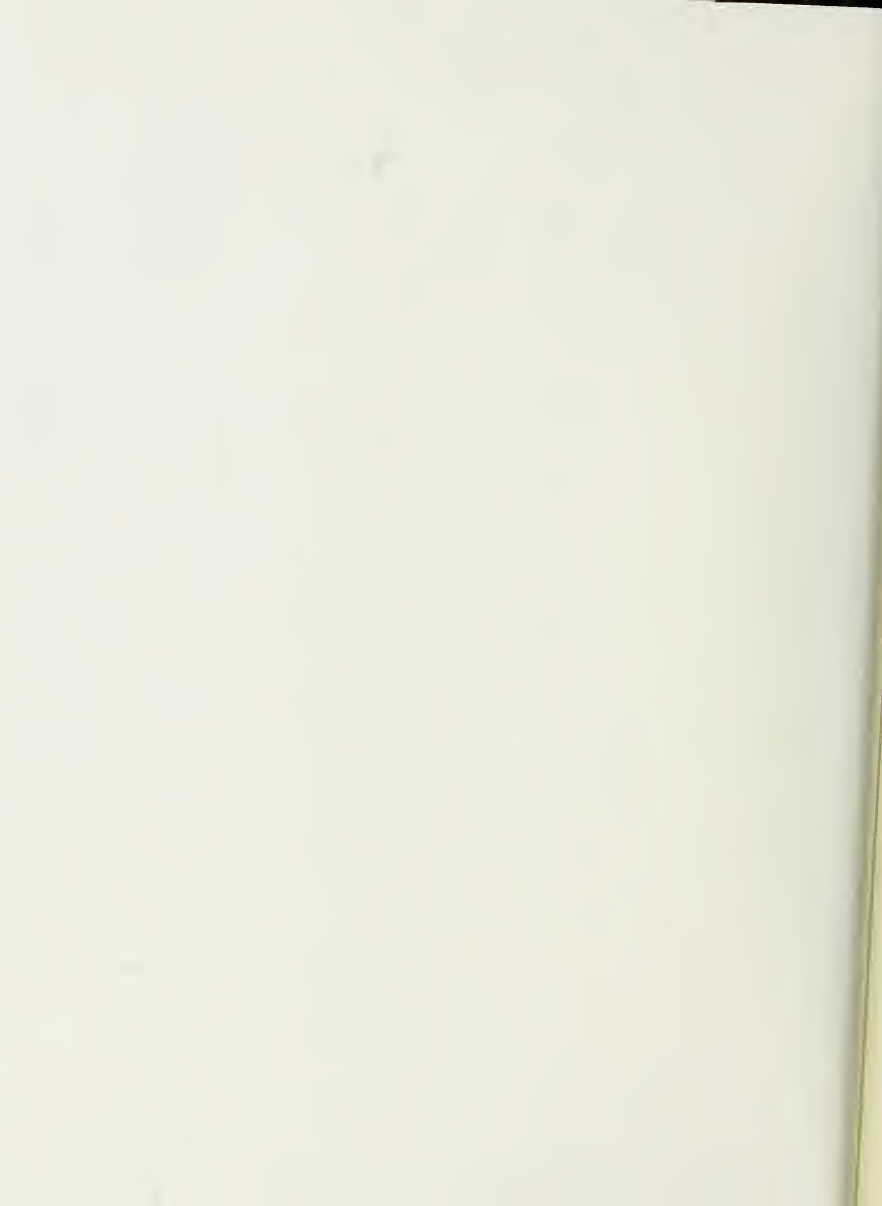


TABLE C4.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:

Peel

SYSTEM:

Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal and restricted to a small area, since HHW depot is located at existing landfill site, including design features at the depot and by implementing contingency measures in the event of an accident 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot but are restricted to a small area due to the location of the depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimal since facilities already exist <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C4.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depot and central compost facilities. The installation of design features to prevent discharges and contingency measures minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required which may result in additional potential effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at HHW depot and compost facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		

TABLE C4.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects
	<ul style="list-style-type: none"> Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to the atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C4.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new central compost facility and new MRF Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and new MRF and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting facilities
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C4.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources</p> <p>Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depot and central compost facilities, and location of new central compost facility and new MRF. The installation of design features and contingency measures, and proper siting of new facilities minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and new MRF, and installing facility design features at new and existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and MRF required which may result in additional effects

TABLE C4.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C4.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:

Peel

SYSTEM:

Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new central compost facility and new MRF Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and new MRF, illegal dumping of wastes and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial system and resources due to siting of facilities Illegal dumping of wastes is anticipated resulting in disruption effects
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C4.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depot and central compost facilities, location of new central compost facility and new MRF, and illegal dumping of wastes. The installation of design features and contingency measures, and proper siting of new facilities minimize the potential for effects. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and MRF required which may result in additional effects Illegal dumping of wastes is anticipated resulting in disruption effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and new MRF, and installing facility design features at new and existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to illegal dumping of wastes but does not eliminate the potential effects 		

TABLE C4.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C4.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new central compost facility Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new central compost facility and new MRF and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of facilities

TABLE C4.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depot and central compost facilities, and location of new central compost facility and new MRF. The installation of design features and contingency measures, and proper siting of new facilities minimize the potential for effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new central compost facility and new MRF, and installing facility design features at new and existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New central compost facility and MRF required which may result in additional effects

TABLE C4.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes or wet wastes which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases

TABLE C4.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Peel
Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and compost facilities Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF and compost facilities, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by facility siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of facilities

TABLE C4.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface Water and Ground Water Resources Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from HHW depot and central compost facilities, and location of new MRF and compost facilities. The installation of design features and contingency measures and proper siting of MRF and compost facilities minimize the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and compost facilities, and installing facility design features at new and existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New MRF and compost facilities required which may result in additional effects

TABLE C4.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities (particularly wet waste compost facility) may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities (particularly wet waste compost facility) and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from wet waste composting may result in additional effects

TABLE C4.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Peel
Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Terrestrial Systems and Resources</p> <p>Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF, central compost, and mixed waste processing and compost facilities Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF, central compost and mixed waste processing and compost facilities, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by facilities siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None
<p>Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources</p>	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of facilities

TABLE C4.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting and central composting but no effects expected Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities (particularly wet waste compost facility) may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities (particularly wet waste compost facility) and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No processing and composting of mixed wastes <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from wet waste composting may result in additional effects

TABLE C4.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

Peel
Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF, central compost, and mixed waste processing and compost facilities Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures restricts potential for loss or removal, in the event of an accident, to a small area 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRF, central compost and mixed waste processing and compost facilities, and due to accidents (e.g. spills, leaks, fires, vehicle upset) at HHW depot. Effects are minimized by facilities siting process or restricted to a small area near facility due to location of HHW depot, design features and contingency measures 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential effects may result due to accidents Potential for loss or removal of terrestrial systems and resources due to siting of facilities
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE C4.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, compost and mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to location of new MRF, central compost, and mixed waste processing/compost facilities and discharges from HHW depot, central compost facilities and mixed waste processing/compost facility. The installation of design features and contingency measures, and proper siting of new facilities minimize the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None <u>Disadvantages</u> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New MRF, central compost facility, and mixed waste processing and compost facility required which may result in additional effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, central compost, and mixed waste processing/compost facilities, and installing facility design features at existing compost and HHW facilities and new compost and mixed waste processing/compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		

TABLE C4.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and compost facilities and MRF. Exposure to these emissions may result in effects Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases Emissions from mixed waste processing and composting may result in additional effects

SCHEDULE D

**IC&I System Net Effects Tables
By Component**

1. INTRODUCTION

The IC&I system net effects tables by component are presented in the following order:

Existing System	-	Tables D1.1 to D1.5
Existing/Committed System	-	Tables D2.1 to D2.5
Extended 3Rs Regulations System	-	Tables D3.1 to D3.5
Expanded 3Rs Regulations System	-	Tables D4.1 to D4.5
Expanded 3Rs Regulations with Organics System	-	Tables D5.1 to D5.5
Processing All IC&I Waste System	-	Tables D6.1 to D6.5



TABLE D1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
 (continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector. • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE DL1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through waste exchange programs Community-based reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Refilling of IC&I containers and packaging Use of reusable packaging 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by IC&I generators Independent voluntary waste reduction programs in private companies Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>IC&I Promotion and Education</p> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D14
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE D1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE DL5
NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE D1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE D1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by major IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by major IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed

CRITERIA GROUP:

Natural

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

CRITERIA:

Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

INDICATOR:

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by major IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Existing/Committed
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE D2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPR) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by major IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE D2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE D2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by major IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified





TABLE D3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> • Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems or resources expected due to siting of new MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Mandatory source separation of designated materials by most IC&I generators in GTA • Voluntary source separation of dry recyclables by small IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Dry Wastes</u></p> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of designated materials by most IC&I generators in GTA • Voluntary source separation of dry recyclables by small IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Dry Wastes</u></p> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by build up of silt and organic materials 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE D3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through waste exchange programs Community-based reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Refilling of IC&I containers and packaging Use of reusable packaging 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) Mandatory development of waste reduction action plans by most IC&I generators Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations

CRITERIA GROUP: Natural

Potential for Effects to Atmospheric Environment

INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE D3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>IC&I Processing - Dry Wastes</p> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facilities resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within facilities. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<p>IC&I Processing - Wet Wastes</p> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE D3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	
	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

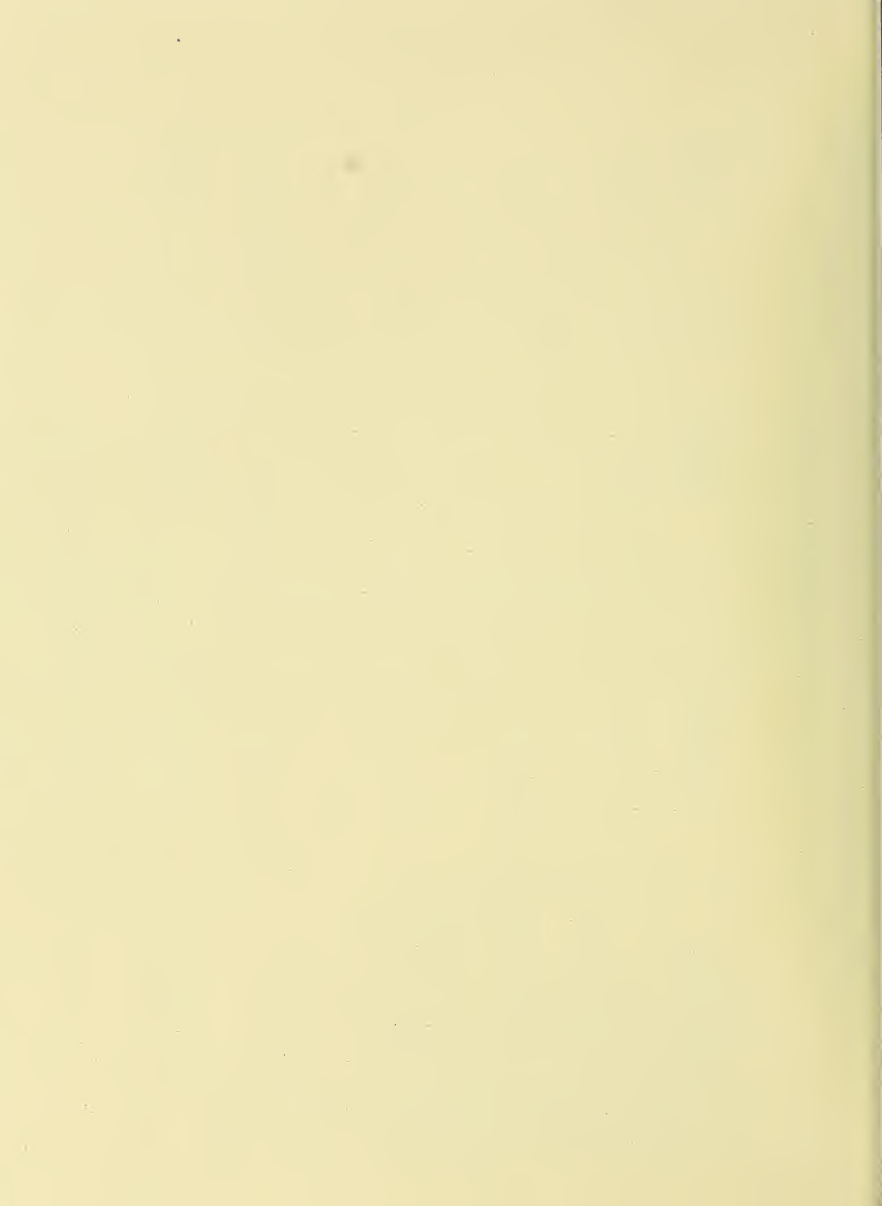




TABLE D4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of expanded list of designated materials by most IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> • Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems or resources expected due to siting of new MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of expanded list of designated materials by most IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for wider list of dry materials required Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials minimized by facility design features to prevent discharges to surface and ground waters

TABLE D4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Atmospheric Environment

INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of expanded list of designated materials by most IC&I generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE D4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Centralized composting of IC&I organics in in-vessel system • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE D4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

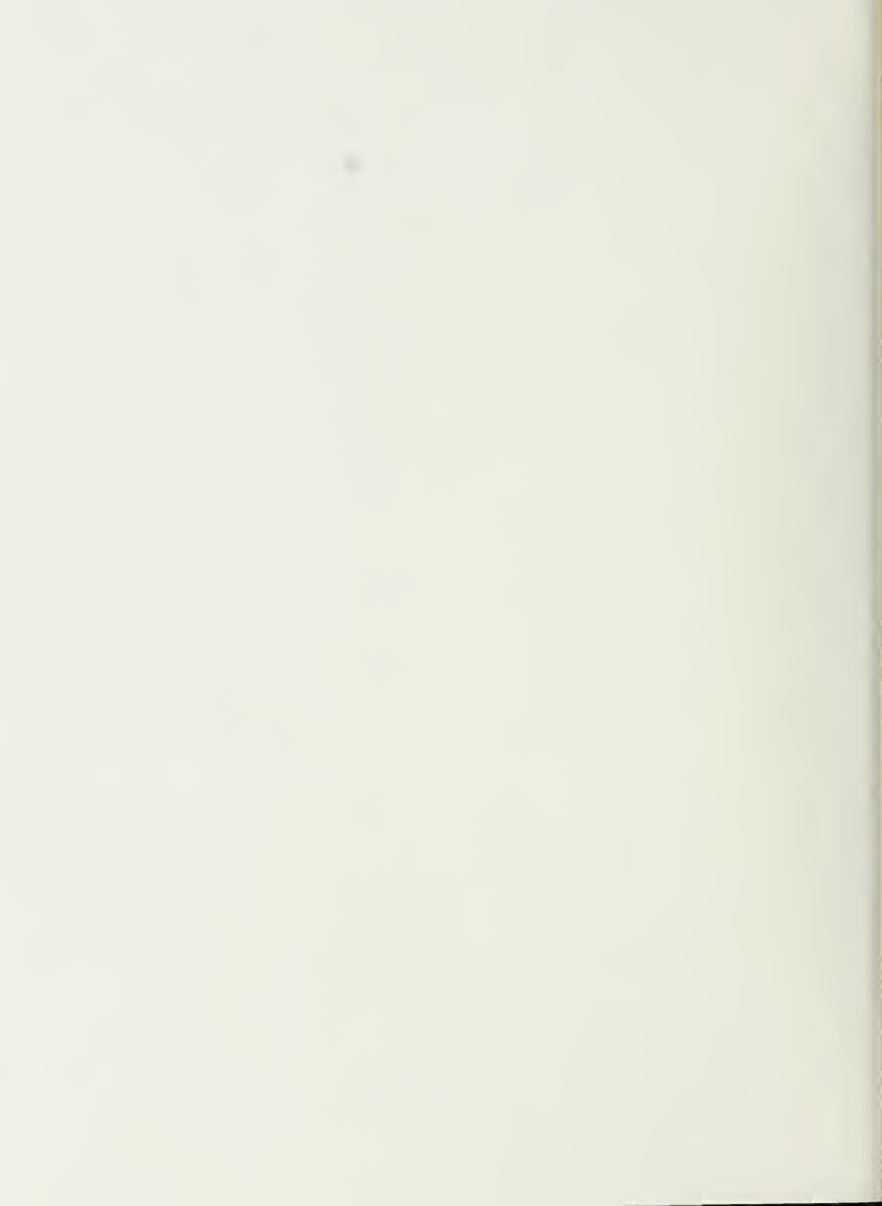


TABLE D5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations with Organics
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Additional processing capacity for dry recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems and resources expected due to siting new MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, agricultural lands) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities

TABLE D5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Additional processing capacity for dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Additional processing capacity for dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by small IC&I generators Mandatory source separation of designated materials by most generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of wet wastes by designated IC&I generators Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Additional processing capacity for dry recyclables 	<ul style="list-style-type: none"> Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting

TABLE D5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>IC&I Promotion and Education</p> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • No effects identified

TABLE D5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) Mandatory development of waste reduction action plans by most IC&I generators Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies Mandatory waste audits by most IC&I generators Mandatory packaging audits by major packaging generators Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by small IC&I generators Mandatory source separation of designated materials by most generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of wet wastes by designated IC&I generators Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE D5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Dry Wastes</u></p> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Additional processing capacity for dry recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Increased emissions (e.g. VOCs) expected due to nature of IC&I organics 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. No effects expected due to air emissions from compost

TABLE D5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified



TABLE D6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials • Mandatory processing of all dry wastes prior to landfilling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Mandatory source separation of wet wastes by designated IC&I generators • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling Mandatory processing of all mixed wastes prior to landfilling 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of new MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, agricultural lands) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities

TABLE D6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by most IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPF) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Terrestrial Systems and Resources
 INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials • Mandatory processing of all dry wastes prior to landfilling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Mandatory source separation of wet wastes by designated IC&I generators • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling Mandatory processing of all mixed wastes prior to landfilling 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through waste exchange programs Community-based reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Refilling of IC&I containers and packaging Use of reusable packaging 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) Mandatory development of waste reduction action plans by major IC&I generators Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials • Mandatory processing of all dry wastes prior to landfilling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Mandatory source separation of wet wastes by designated IC&I generators • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling Mandatory processing of all mixed wastes prior to landfilling 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE D6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) Mandatory development of waste reduction action plans by major IC&I generators Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies Mandatory waste audits by most IC&I generators Mandatory packaging audits by major packaging generators Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by small IC&I generators Mandatory source separation of designated materials by most generators Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials Mandatory processing of all dry wastes prior to landfilling 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Mandatory source separation of wet wastes by designated IC&I generators Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE D6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling Mandatory processing of all mixed wastes prior to landfilling 	<ul style="list-style-type: none"> Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by build-up of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting

TABLE D6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
IC&I Reuse <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Atmospheric Environment
 INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by most generators • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials • Mandatory processing of all dry wastes prior to landfilling 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Mandatory source separation of wet wastes by designated IC&I generators • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE D6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Dry Wastes</u></p> <ul style="list-style-type: none"> Processing of specific dry materials in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned and operated by the private sector Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling Mandatory processing of all mixed wastes prior to landfilling 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility for IC&I organics Composting of IC&I organics in municipal in-vessel system 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. No effects expected due to air emissions from compost

TABLE D6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

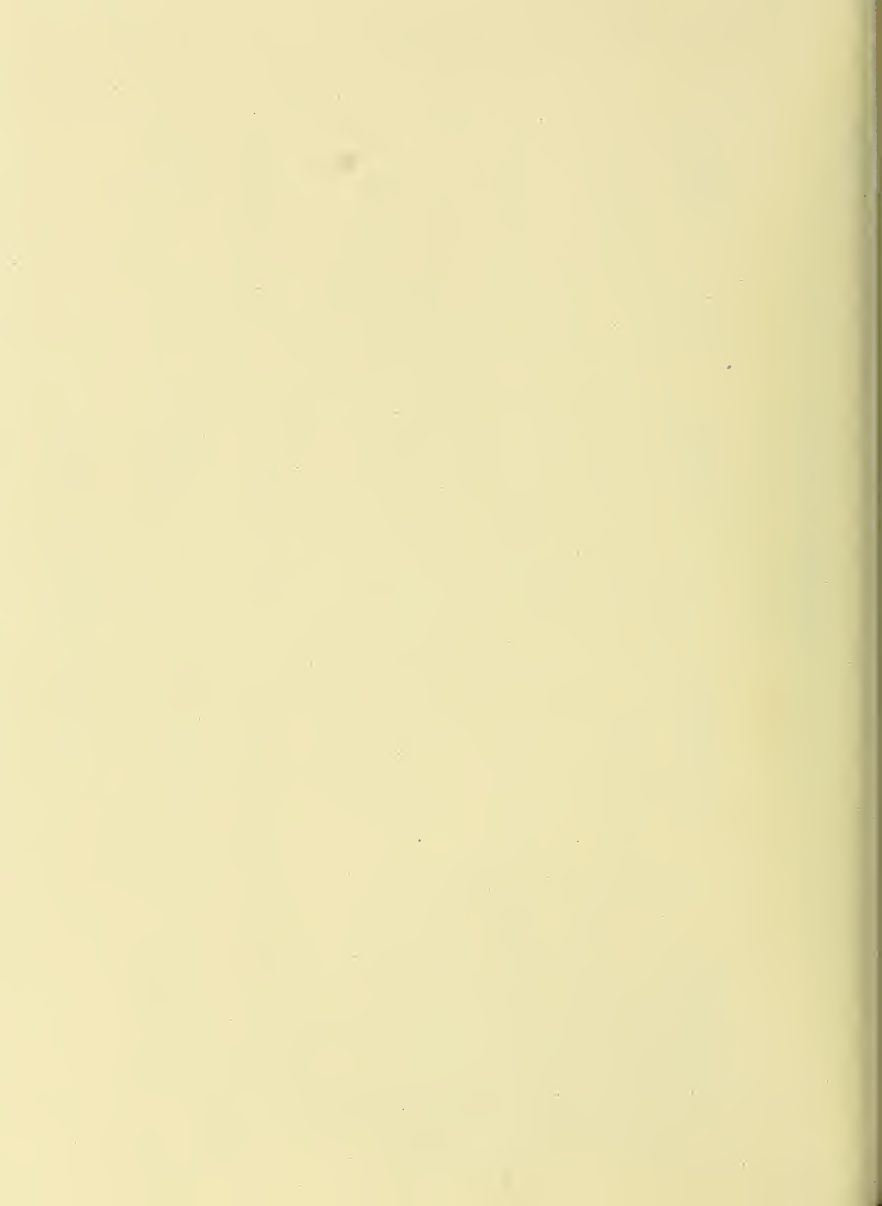
Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging • Use of reusable packaging 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by 25% by the year 2000 (NAPP) • Mandatory development of waste reduction action plans by major IC&I generators • Mandatory development of packaging reduction action plans by major packaging generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators • Mandatory packaging audits by major packaging generators • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE D6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • IC&I information hotline • Promotion/education program focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees by most IC&I generators 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified



SCHEDULE E

IC&I System Net Effects Tables

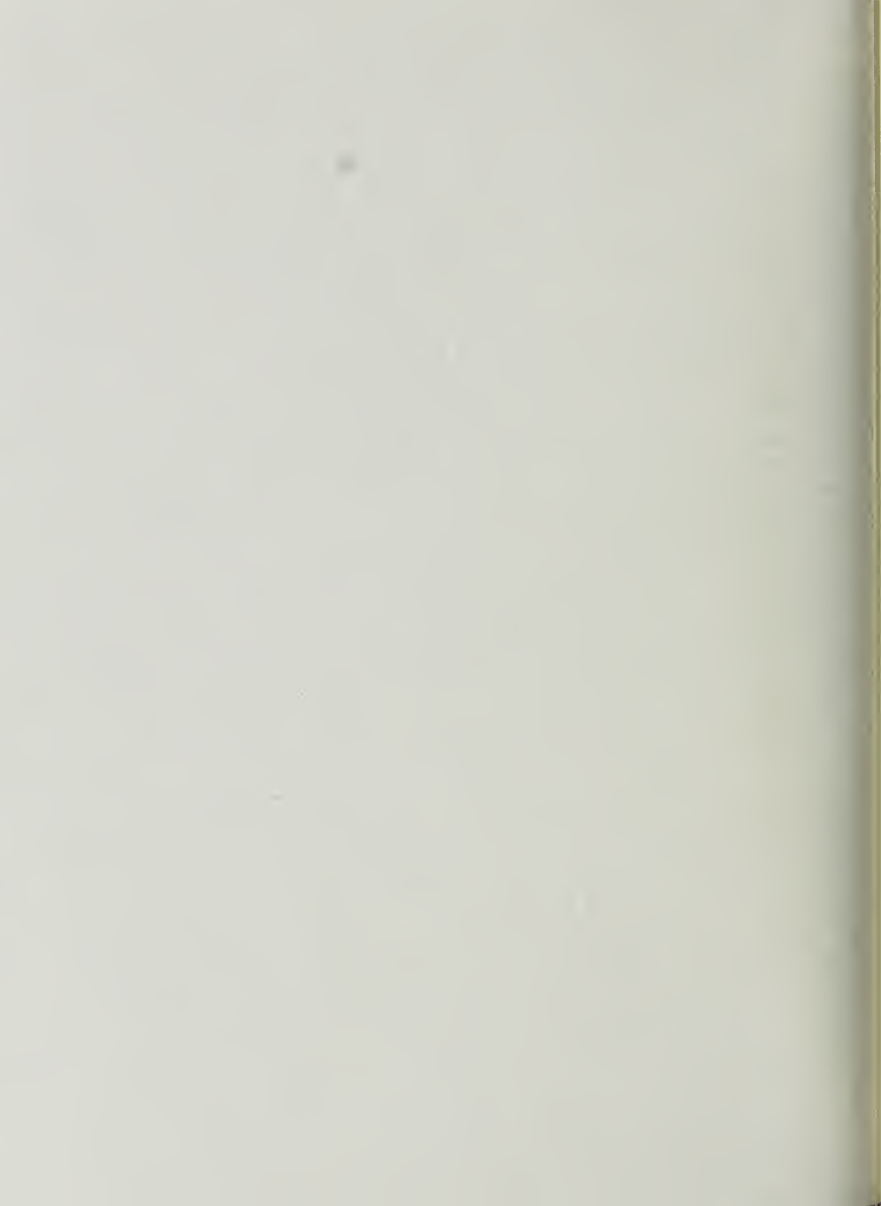


TABLE E.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: GTA
SYSTEM: IC&I Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none">No effects identified	<ul style="list-style-type: none">Potential effects to terrestrial systems and resources are not expected since facilities already exist	<u>Advantages</u> <ul style="list-style-type: none">Potential effects to terrestrial systems and resources not expected since facilities already exist <u>Disadvantages</u> <ul style="list-style-type: none">None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none">No effects identified		
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none">Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters	<ul style="list-style-type: none">Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features to prevent discharges minimizes the potential for effects	<u>Advantages</u> <ul style="list-style-type: none">No new facilities required which may result in additional potential effects <u>Disadvantages</u> <ul style="list-style-type: none">Potential for effects due to discharges from existing facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none">Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at compost facilities to prevent discharges to surface and ground waters		

TABLE E.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No increase in waste collection requirements or increased processing of IC&I organics which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to the atmosphere include dust, exhaust, bioaerosols and gases

**TABLE E.2
SYSTEM NET EFFECTS TABLE**

REGIONAL MUNICIPALITY: GTA
SYSTEM: IC&I Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none">No effects identified	<ul style="list-style-type: none">Potential effects to terrestrial systems and resources are not expected since facilities already exist	<u>Advantages</u> <ul style="list-style-type: none">Potential effects to terrestrial systems and resources are not expected since facilities already exist <u>Disadvantages</u> <ul style="list-style-type: none">None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none">No effects identified		
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none">Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters	<ul style="list-style-type: none">Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features to prevent discharges minimizes the potential for effects	<u>Advantages</u> <ul style="list-style-type: none">No new facilities required which may result in additional potential effects <u>Disadvantages</u> <ul style="list-style-type: none">Potential for effects due to discharges from existing facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none">Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at compost facilities to prevent discharges to surface and ground waters		

TABLE E.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion: Potential for Effects to Atmospheric Environment</p> <p>Indicator: Potential for Atmospheric Emissions</p>	<ul style="list-style-type: none"> Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No increase in waste collection requirements or increased processing of IC&I organics which have increased potential for effects <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, bioaerosols and gases

TABLE E.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

GTA
IC&I Extended 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new or expanded MRFs. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> No effects identified 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to expanding MRFs or siting new MRFs
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities and locations of new or expanded MRFs. The installation of design features and proper siting of MRFs minimize the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and installing design features at existing compost facilities to prevent discharges to surface and ground waters 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New or expanded MRFs required which may result in additional effects

TABLE E.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No increase in processing of IC&I organics <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, bioaerosols and gases Increased dust and exhaust emissions from increased collection vehicle requirements

TABLE E.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:

GTA

SYSTEM: IC&I Expanded 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none">Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs	<ul style="list-style-type: none">Potential for effects to terrestrial systems and resources is a result of siting new or expanded MRFs. Effects are minimized by siting process	<u>Advantages</u> <ul style="list-style-type: none">None <u>Disadvantages</u> <ul style="list-style-type: none">Potential for loss or removal of terrestrial systems and resources due to expanding MRFs or siting new MRFs
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none">No effects identified		
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none">Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters	<ul style="list-style-type: none">Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities and locations of new or expanded MRFs. The installation of design features and proper siting of MRFs minimize the potential for effects	<u>Advantages</u> <ul style="list-style-type: none">None <u>Disadvantages</u> <ul style="list-style-type: none">Potential for effects due to discharges from existing facilitiesNew MRFs or expanded MRFs required which may result in additional effects
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none">Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and installing design features at existing compost facilities to prevent discharges to surface and ground waters		

TABLE E.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No increase in processing of IC&I organics <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, bioaerosols and gases Increased dust and exhaust emissions from increased collection vehicle requirements

TABLE E.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

GTA
IC&I Expanded 3Rs Regulations With Organics

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRFs and compost facilities 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRFs and compost facilities. Effects are minimized by facility siting process 	<u>Advantages</u> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> No effects identified 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new MRFs and compost facilities
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by proper siting of compost facilities and installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities and location of new MRFs and compost facilities. The installation of design features and proper siting of MRFs and compost facilities minimize the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None

TABLE E.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and compost facilities, and installing design features at new and existing compost facilities to prevent discharges to surface and ground waters 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New or expanded MRFs and new compost facilities required which may result in additional effects
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic for both dry recyclables and organics travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Increased emissions expected due to composition of IC&I organics 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. Exposure to these emissions may result in effects 	<u>Advantages</u> <ul style="list-style-type: none"> None <u>Disadvantages</u> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, bioaerosols and gases Increased dust and exhaust emissions from increased collection vehicle requirements Increased gaseous emissions (e.g. VOCs) due to increased composting and composition of IC&I organics

TABLE E.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: GTA
SYSTEM: IC&I Processing of All IC&I Waste Prior to Landfilling

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRFs and compost facilities 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is a result of siting new MRFs and compost facilities. Effects are minimized by facility siting process 	<u>Advantages</u> <ul style="list-style-type: none"> None
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> No effects identified 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new MRFs and compost facilities
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by proper siting of compost facilities and installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for effects to aquatic systems and water resources is due to discharges from central compost facilities and location of new MRFs and compost facilities. The installation of design features and proper siting of MRFs and compost facilities minimize the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None

TABLE E.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and compost facilities, and installing design features at new and existing compost facilities to prevent discharges to surface and ground waters 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for effects due to discharges from existing facilities New or expanded MRFs and new compost facilities required which may result in additional effects
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic for both dry recyclables and organics travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Increased emissions expected due to composition of IC&I organics 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. Exposure to these emissions may result in effects 	<u>Advantages</u> <ul style="list-style-type: none"> None <u>Disadvantages</u> <ul style="list-style-type: none"> Emissions to atmosphere include dust, exhaust, bioaerosols and gases Increased dust and exhaust emissions from increased collection vehicle requirements Increased gaseous emissions (e.g. VOCs) due to increased composting and composition of IC&I organics



